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Remembering J.P.

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TO all his friends, J.P. Naik was known and spoken of as J.P. This was indeed a tribute because to be instantaneously recognized by one's initials is due recognition.

I was well-acquainted with J.P the writer, long before I met him in person, through his monumental history of Indian education and the publications of an institute of education he was instrumental in setting up in Bombay.

We met face-to-face when he joined the Central Ministry of Education as Adviser. I remember the occasion vividly even across a wide span of about thirty-five years. We talked (rather he talked and I listened), simply and in an outgoing style. We had both been assigned by the Ministry to 'do' elementary education. In that simple first-meeting conversation, we both knew that there was no possibility of conflict or of 'turf war' or 'bypassing manoeuvres' (so characteristic of bureaucracy at its shoddiest) in our working relationship. All my subsequent work with J.P. confirmed the first impression of J.P.'s style of work—his capacity to offer, and also to win, confidence and his unbounded enthusiasm and zest for educational ideas and educational action.

Shortly before our first meeting, J.P. had attended as the Indian delegate a UNESCO meeting held at Karachi to prepare a regional plan for universalization of primary education in Asia. The meeting brought out what became famous internationally as the Karachi Plan (1960) for universal primary education in Asia. J.P. was, I learnt subsequently, the principal architect and "begetter" of the Karachi Plan under UNESCO auspices. It was the first plan of its kind at the international level and became a model for a series of regional plans for Africa and other regions.

At my first meeting with J.P., he made no reference to his recent work on the Karachi Plan, beyond a casual mention of the 'profile' of primary education targets in Asian countries. It was only some years later, when I was working for UNESCO, that I learnt first-hand accounts from UNESCO experts who had attended the meeting at Karachi, of the stupendous effort J.P had put forth in developing the plan One of the UNESCO experts told me, "Mr Naik did not seem to sleep at night, night after night he was working away at the design and nuts and bolts of the Plan. ." This was typical of J P's method of work—he gave all to whatever he undertook to do It was also typical of him that in our first meeting, he did not flag his role in fashioning the Karachi Plan · a spirit of modesty was always a signal distinction of his intellectual calibre.

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*He was also Joint Secretary in the Department of Education, Ministry of Culture and Social Welfare

As a follow-up of the Karachi Plan for the universalization of primary education, UNESCO proposed establishing in cooperation with the member States in Asia, a series of regional institutes for training educational planners and supervisors for the member-States in Asia. J.P assumed responsibility to start off the institute in New Delhi It was accomplished in record time with an improvised faculty and the first batch of educators from Asian member-States attended the first course. J.P. was at his inspiring best as teacher and guide and the course concluded as a clear success. Years later, when as a UNESCO staff member and regional director of education, I visited the countries of the region, many educators in the countries occupying positions of high responsibility would recall in their conversations how much they learnt in the early courses at the New Delhi institute, in particular from lecturer J.P Naik. I relayed these compliments unfailingly to J.P who would promptly attribute the success to other members of the improvised faculty. This was the secure foundation on which the 1972-73 NIEPA was raised

In the early 1960s, a strong awareness in the Ministry of Education and in the Planning Commission focussed on research and development and on training areas for systematic collaboration with and support of the educational endeavours in the States. I was closely involved in these early initiatives As I studied old files in which previous proposals for educational research and development were canvassed, I came across a longish memo by J P. in which he had suggested that the medley of small institutes that had been established by the Central Ministry at New Delhi in the 1950s be amalgamated and housed in a new campus This memo became the starting point of a careful and complex plan for an educational research–development–training organization I was in charge of elaborating the plan with the cooperation of J P and a team of educators Once again, J P. impressed us all deeply by his insights and vision. Amalgamating these various small institutes with their different and, at times, incompatible philosophies into an articulated entity was not an easy task At times tempers ran high, other times there was danger of losing commitment. Through it all, J.P was a steadying anchor Some of the institutes were following programmes to which J P found it difficult to relate.

J P. Naik (1907–81) was an eminent educationist, social worker, thinker and writer

Nonetheless, he showed a unique capacity to empathize with the differing views and in the result secure for the project a strength that comes from cooperative work The NCERT was thus the result of a wonderful team of dedicated educators.

My most vivid and enduring remembrance of J.P. is from his close ties with my family, especially the children. This facet of his personality, his love of children, did not reveal itself in the aura of educational scholarship or policy-making; it unfolded unmistakably when he was with children My wife and our children (now grown-up and with their own children) remember him best when he was in our family circle, and they have helped me to recall his visits to our home in New Delhi

J.P. and I had been working on a difficult project. I invited him to my home so that he might meet the family and we could also work away from the bleak atmosphere of the secretariat office. He came on a Saturday All my five children were at home along with a few visiting friends of theirs. Three of my children were teenagers full of assurance and the spirit of rebellion, and two were on the threshold of teenage. When J.P. arrived, he immediately made for the area of the living room where the children were at work. He introduced himself and started some sort of conversation with the bewildered children He was utterly simple and natural and it did not take long for the children to feel at ease. I could sense that he had been accepted. By the end of the day, he was on friendly terms; he was being grilled on some subject or the other. Before leaving, he promised them that he would visit them again And he did, he would visit us or just drop by to talk to the children. They looked forward to his visits or even phone calls. One evening he came with an anthology of poems. He recited some, he read out some more and soon the children were reading out with "full-throated ease"! J P. loved the children with a love that evoked an equal love in response. Our children remember J P.'s visits even across these thirty years.

In 1964 my family and I left India when I started service with UNESCO, based at Bangkok Whenever I was in New Delhi on official visit or home leave, I always spent time with J.P., bringing myself up-to-date on his thoughts and plans.

Then, I invited him and Smt. Naik to come over to Bangkok and spend time with us. They came and we were together—my family and they—every day He gave a series of talks on education under the auspices of UNESCO. He met for professional discussion with our UNESCO colleagues in small groups. He told me that he felt renewed by these professional exchanges In my family we were all aware in a cloud of sadness that J P's health was ebbing But his spirit was high as always.

One late afternoon stands out in my memory from those last days. He was working in our UNESCO office I was to pick him up and take him to where he and Smt Naik were staying I was held up in my office J.P. had left his office and gone over to a shady tree-lined garden next to the UNESCO office When I came down, I saw him on a bench in the garden surrounded by eight or nine Thai children (their parents lived on the grounds or in the neighbourhood) There was no common spoken language between J P. and the children. I held back not wanting to disturb them. J.P was gesturing with both hands and was in high spirits, the Thai children, first shy, were now talking all together and then one of them started singing I do not know what the words of the song were but I know it was to thank J P for the gift of his caring affection with which he surrounded them

Routinization, Resistance and Reforms

Anatomy of Educational Change

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Abstract

Changes due to globalization, liberalization and advances in information technology have had a profound impact on society. This has necessitated a relook into the school curriculum. In response to the major educational policies of the country—the 1968 policy, the National Policy on Education (1986), and the Programme of Action (1992)—the NCERT has contributed in great measure by bringing out new curriculum frameworks and generating new series of textbooks. The need is to develop a curriculum rooted in culture and committed to progress.

GLOBAL upsurge for Universal Elementary Education is one of the long-lasting landmarks of the twentieth century Though still unachieved, this mandate has transformed the process of change in every aspect of human endeavours and initiatives At this juncture of history, change is visible everywhere in a magnitude never experienced or visualized ever before Needless to say, change has characterized the very growth and development of human beings throughout their existence on the planet Globally, changes are envisioned, perceived, observed, analyzed and based upon the inferences, either accepted or rejected Ignorance, illiteracy and poverty often impede this process of sifting the desirable from the undesirable. While it is generally accepted that change is inevitable, it is often resisted due to inherent identification with the past and also the inertia to accept whatever is new.

Change needs envisioning perception and understanding which lead to initiation and implementation It could take place on a large scale or on a small scale. Basically, planning for the change is the key factor which must follow the process of perceiving the initiative. In all changes leading to reform and improvement, the basic objective is to get them institutionalized in the system, whether large or small. Unnecessary delay results in dissipation of initiatives. An example is the recommendation of the Education Commission (1964-66), also known as the Kothari Commission, on a common school system in India After more than 30 years, this recommendation has practically been forgotten as no sincere efforts were apparently made by the planners and implementers to put the recommendation into practice One rarely hears the usage of this term in debates and deliberations of significance in school education

The constitution of every country reflects its ethos and also its main concerns The Constitution of India, accordingly, identified Universal Elementary Education as one of the major goals to be achieved and mandated a time-frame of 10 years for the same. This was a revolutionary vision in a newly independent, large country which had to struggle on several fronts like food, nutrition, health, energy, security and lack of resources to implement its developmental initiatives Of course, the country had the requisite intellectual and professional manpower of its own to have an indigenous perspective of its requirements Front-line leaders of the freedom struggle had realized the significance of education on one hand and the need to develop a model suitable for the Indian situation on the other. It is another story that the 10 years' target still remains elusive The achievements too are significant Nearly double the population of India at the time of Independence is now literate This could have been a shining example of educational achievement if about 296 million people were still not illiterate The concerns of population, poverty, environment, energy, water, urbanization and several others remain prominent. The social, cultural and economic contexts become the determining factors for educational policies and curriculum in schools

The first major educational policy formulation in the post-Independence period was made as a consequence of the Kothari Commission Report (1964-66) in the year 1968. The restructuring of the school education system in the 10 + 2 + 3 pattern is one of the visible outcomes of this policy It also made a recommendation of far-reaching consequence by introducing undifferentiated curriculum for 10 years of schooling for both boys and girls For the first time, science and mathematics were made compulsory components of 10 years' schooling again for both boys and girls. This recommendation has made effective and visible contribution in generating manpower suitable for all sectors of development in national initiatives.

The implementation of the 1968 policy in the school sector at the national level was logically achieved through the school curriculum framework developed by NCERT in the year 1975. The framework kept in focus the recommendations of the Education Commission for an "internal transformation of education" so as to relate it to the life, needs and aspirations of the nation and the values enshrined in our Constitution towards the development of a pluralistic i e open society and a State which is secular, democratic and socialist in nature Every attempt was made to reflect these aims and values in structure, content, methodology and in the entire design of the curriculum. It also emphasized that the rigid structures of the system have to be changed and alternatives like multiple entry, part-time education, non-formal education and teaching by workers, artisans, writers, etc. in schools have to be tried out to achieve the goals of comprehensive educational transformation. The rigidity of the system, however, retained its hold over it and several of the recommendations were not implemented in letter and spirit However, initiatives in non-formal education, adult literacy, part-time education, correspondence education became significant, visible and known

The next major policy formulation was the National Policy on Education–1986 It focused on deriving the maximum benefit from the assets already created and on ensuring that the fruits of change reached all sections Education was considered the highway to achieve that goal It also records the need to give a new direction "to an age-old process " The intervening period between 1968 and 1986 was marked by considerable expansion in educational facilities which have reached more than 90 per cent of the country's rural habitation having a learning centre within one kilometre It was felt that the 1968 policy was not translated into a detailed strategy of implementation This was amended by bringing out a Programme of Action–1992 which detailed out the specific strategies, programmes and initiatives to be taken up by both Central and State Governments The significance of the curriculum of school education was realized and NCERT brought out another curriculum framework in 1988 to respond to the new situation which had emerged before the country. The NCERT also noted that several issues like curriculum load became major concerns in the system An attempt was made by the Ishwarbhai Patel Committee in 1977 to examine some of these. This report did not receive much attention and support because it had recommended different levels of courses in mathematics and science at the secondary stage A study conducted by NCERT in 1983 analyzed the various factors leading to curriculum load and the large number of failures in the school system and particularly pointed out the domination of public examinations responsible for depriving the pupils of the joy of learning The curriculum framework (1988) emphasized the internalization of the several concerns in the school curriculum in order to prepare better citizens for tomorrow. These included quality of education and opportunity, preservation of cultural heritage, constitutional obligations, strengthening of national identity and unity, character building and inculcation of values, development of global perception, protection of environment and conservation of natural resources and small family norms

Both these curriculum frameworks were analyzed by the State Governments and their professional agencies. They were generally accepted and appreciated The subsequent development of textbooks by NCERT on both the occasions also contributed immensely to similar exercises being undertaken in the states, which obviously kept in consideration the local-specific issues and resources, and related curriculum contents as these are professionally desirable. After 1988 it was expected that the curriculum would be revised after every five years. This was emphasized in the policy formulation of 1992. However, NCERT could not undertake the exercise of bringing out the new curriculum framework or generating a new series of textbooks Consequently, there was consternation in the school education system regarding whether books and other materials developed in 1988 could be considered suitable and desirable in the year 2000! Based upon this professional requirement, the NCERT initiated the process of curriculum development in the second half of 1999 and placed the discussion document before the nation in January 2000 listing all the major concerns and issues which school education must respond to, based upon the experiences of the past and perceptions of the future.

The experience of the last five decades must alert the nation to the need for an honest implementation of educational policies and particularly to the need to develop a curriculum for schools that would be "rooted to culture and committed to progress " The need to build a cohesive society based on the pillars of equality, equity and relevance cannot be taken lightly To achieve this, inclusion of indigenous knowledge and recognition of the contributions of Indian thinkers, scientists, creative persons and the communities needs to be highlighted appropriately It would inculcate the feeling of belonging to the nation and the sense of patriotism and nationalism tempered with the spirit of *vasudhaiva kutumbkam* Issues like reducing the curriculum load, need for developing the integral personality of the learner, empowering teachers to meet the challenges, information and communication technology, and globalization can no longer be ignored The issues of character building on one hand and that of integrating science and technology on the other will have to be debated very seriously in the context of school education. The multiplicities and pluralities of Indian society leading to the inherent strength of the nation are to be internalized by every section of the society. Reforms in education would not necessarily follow if the process of change is not carefully scrutinized at every step It needs to be understood very precisely that change does not necessarily lead to reform. To achieve that one cannot be satisfied by merely being a part of change. The nation has to prepare itself to lead the change. The Indian educational system needs a professional response from individuals, institutions, organizations and decision makers irrespective of their personal likes and dislikes Education is the key for India to become a Superpower in the twenty-first century

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Implementing Cooperative Learning Strategy for Inservice Teacher Education

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Abstract

A cooperative learning strategy comprising (i) lecture for 25-35 per cent of the total time per module, (ii) self-study, and (iii) discussion in two groups was successfully implemented for training of inservice chemistry teachers. Both cooperative and competitive situations were provided. The teachers behaved cooperatively during self-study and competitively during discussion sessions.

INSERVICE Teacher Education Programmes (ITEPs) for various stages of school education in India are conducted by different agencies working at the national, state and district levels The programmes for secondary and senior secondary teachers mainly focus on transmitting the subject knowledge through a series of lectures delivered by resource persons invited mainly from colleges and universities who concentrate, in general, on the content coverage neglecting the pedagogical aspects Many a time they even tend to cross the curricular boundaries and go much beyond the academic needs of teachers. In these lectures, the teachers remain passive listeners. This passive and non-interactive mode of teacher education has not produced results up to the desired level of satisfaction Also, after following this passive and non-interactive mode, the participating teachers carry the impression that perhaps lectures constitute the best teaching mode and they in turn continue to teach their students by the same passive mode As a consequence, a passive and non-interactive mode of teaching is percolated from ITEPs down to the classrooms

Cooperative learning strategy is an interactive mode of learning and involves a positive interdependence among the learners During the last three decades, a number of cooperative learning strategies have been developed for implementation in classrooms for the benefit of students. Notable pioneers among these are Keller's Personalized System of Instructions and Postlethwait's Audio Tutorial System Mathur and Brahm Parkash developed Individual Guided System of Instruction—a cooperative learning strategy for secondary science classes in Indian schools

The present work pertains to a cooperative learning strategy which was developed and successfully implemented in a teacher orientation programme organized in two phases—the first phase of ten days' and the second of seven days' duration. Thirteen postgraduate teachers (PGTs) in chemistry invited from different institutions from all over the country attended the first phase and twelve PGTs attended the second phase of this programme Ten teachers were common in both the phases.

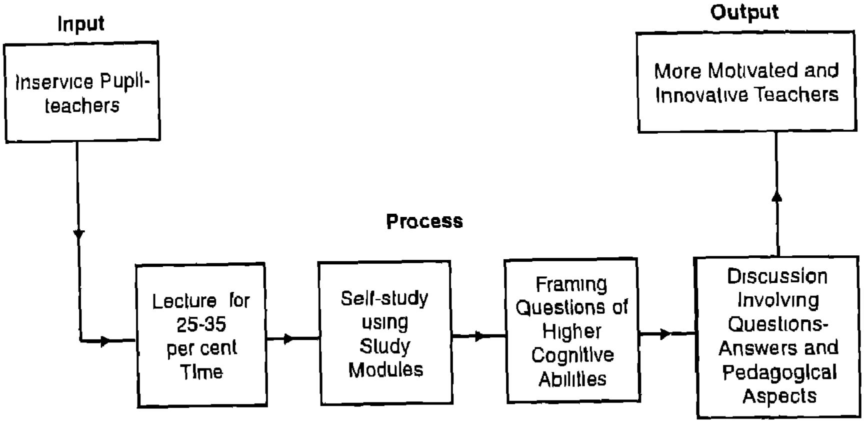
Description of the Strategy

The implementation of the present cooperative learning strategy for an inservice teacher orientation programme consists of the following main steps · (1) presentation of the topic by the resource person, (2) self-study using the given self-study module and construction of questions and problems, and (3) discussion on the module involving the entire group.

The self-study modules required in this system are developed in advance with logical clubbing of a number of curricular units in one module (Appendix) In the present study, nine modules in all were developed keeping in view the teachers' needs identified through questionnaires, verbal interviews and workshops, and basic chemical concepts. Each study module contains an introduction giving the importance of the topic and sub-topics included in it, the inter-linkages between various sub-topics and an overview of the module. The introduction helps to motivate and arouse the interest of learners in the module. The content material is sequentially developed in simple language Difficult concepts are explained by alternate pedagogical approaches Simple and easy concepts are not totally neglected but given a passing reference so as to maintain a continuity in the content material. A few questions of higher cognitive abilities are provided after the text. The references of a number of books are provided at the end. The teacher-participants may consult these books if they want to go into greater depth of any of the concepts

In the beginning of the orientation programme, the aims and objectives of using cooperative learning strategy vis-a-vis lecture intensive strategy, the content portions to be given more stress during the presentation by the resource person and the mechanism of holding self-study and discussion sessions are thoroughly discussed with the participating teachers. The whole programe is conducted on the lines which emerged during the discussion. This creates a feeling among them that the strategy has been formulated by them and they make an all-out effort to successfully use it in their orientation programme. In the next session, a study module is provided to every teacher. The resource person briefly presents the topic explaining difficult concepts using appropriate teaching aids and showing demonstrations as needed This is followed by a self-study session in which the teachers study the given module on their own in smaller sub-groups, each comprising two or three teachers. During this session, the group members are free to move around to have discussions with any other teacher and resource person and also go to the library for consultation as per need When all the members of a sub-group complete the module, they discuss it among themselves and solve each other's problems. They also prepare questions and problems preferably of higher cognitive abilities. After all the sub-groups have completed the module and framed questions, a discussion is held on the entire module. For this the whole group is divided into two sub-groups by combining the smaller sub-groups Both sub-groups now consist of equal number of teachers In case of an odd number, one of the sub-group would have one teacher more than the other sub-group

The members of sub-group I sit on one side facing the members of sub-group II A member of sub-group I puts forth a question framed in the previous session and any member of sub-group II answers this question. An exhaustive discussion follows on the concept(s) involved in the answer of this question among the members of the two sub-groups with the resource person acting as the convenor Additional queries, if any, raised by any member are also sorted out in the group for the emergence of satisfactory answers. Then the next member of sub-group I puts forth another question to be answered by sub-group II The process continues When all the members of sub-group I have asked questions, the members of sub group II get the chance and members of sub group I answer the questions In this manner, the entire module is thoroughly covered with the involvement of each and every participating teacher. If, by chance, any portion of the module is left uncovered,


Input
Inservice Pupil-teachers
Output
More Motivated and Innovative Teachers
Process
Lecture for 25-35 per cent Time
Self-study using Study Modules
Framing Questions of Higher Cognitive Abilities
Discussion Involving Questions-Answers and Pedagogical Aspects

Stages of Cooperative Learning Strategy for inservice teacher education

the convenor guides the discussion and asks questions and ensures that the entire module is effectively covered The whole discussion centres around the content and pedagogical aspects and the quality of questions asked and answers given keeping in view the curricular boundaries so as to fulfill the curricular needs of teachers. The work on the next module starts only after satisfactory completion of the previous module.

Resource Person's Role

Besides making a brief presentation of the module in the beginning, the resource person provides individual counselling He/she acts as a convenor and moderator during the discussion sessions and guides the discussion so as to achieve the desired goal. He/she remoulds the questions/problems raised by the teachers as needed to ensure that the whole discussion involves issues of higher cognitive abilities and that the entire module is covered satisfactorily. He/she also ensures the participation of each and every participating teacher in the discussion sessions

Out of nine study modules, the first five were covered in the first phase and the remaining four were covered in the second phase of the programme The serial order of discussing the modules was the same as given in the Appendix At the end of the programme, the participating teachers were asked to give their opinion on the following six components· (1) average lecture time per module, (2) effectiveness of working in sub-groups, (3) quality of questions and problems raised during discussion sessions, (4) application of cooperative learning in place of lecture intensive strategy in ITEP, (5) willingness to use cooperative learning in classrooms in their schools, and (6) additional suggestions for improvement of cooperative learning strategy All the 12 teachers felt that the lecture time by the resource person differed from module to module but on an average 25-35 per cent time was sufficient for lectures The total time to be spent on a module depends on the nature of the topic and sub-topics included in it On an average six to 14 hours are spent on a module

During the self-study sessions, teachers were highly cooperative in solving one another's difficulties and framing good quality questions for use in discussion sessions In these sessions, five teachers could get all their difficulties solved while the remaining seven could get these solved only partially But these seven teachers were also convinced as they could get the solutions to their difficulties during the discussion sessions Seven teachers found the quality of questions/problems raised during discussion sessions highly challenging Six teachers expressed the view that the questions were of sufficiently good quality All the participating teachers felt that cooperative learning was more useful and stimulating than lecture intensive programmes. They also expressed their willingness to use cooperative learning in their classrooms.

The interest of all the participants was rated on three aspects on a five-point scale· (1) self-study of modules, (2) interaction with fellow teachers and resource persons, and (3) participation in discussion sessions. It was noted that all the teachers took keen interest in studying the modules and discussing the subject with fellow teachers and resource persons. All of them participated actively in discussion sessions and asked application-type questions. They also accepted their mistakes or shortcomings, if any, in either framing questions or answering any of the questions without reservations

Discussion

The learning strategy applied in the present inservice teacher orientation programme incorporates two important parameters, cooperative and competitive behaviour of teachers in different settings. One's behaviour is largely determined by the situation one is in The power of situational variables is tremendous For example, if a group of persons is caught in a room with a siren outside and smoke coming in under the door and the only way to get out is to pull together, every one will be very cooperative But on the other hand, if someone comes into the room and throws some gold coins and says, "Whosoever picks these, may keep them", each one will try to collect as many coins as possible and thus will be very competitive (Ron Brandt, 1989) Thus, the teachers behave coooperatively while working in smaller groups and competitively during the discussion sessions The cooperative component of the strategy encompasses positive interdependence as the teachers help each other in learning the subject and designing questions in smaller groups The competitive situation provided in the strategy (discussion sessions) encompasses individual accountability as the teachers prepare well in order to save themselves from the embarrassment arising from putting forth poor quality or defective questions or not answering or incorrectly answering a question. Thus the whole programme is in tune with the human psychology of teachers. They work on their own in cooperative and competitive environments

Conclusion

The strategy applied in the present programme may be adopted or adapted by the teacher educators in teacher orientation programmes It will help teachers to recognize that the highly structured aproach, that most adults grew up with, is one-sided To rely on a highly structured aproach is to limit the range of experiences of learners and leave them less prepared for the kind of world they will be living in. The first time when teacher educators plan to introduce cooperative learning, they may have to work hard in getting the study materials developed. Subsequently, however, it could run without any extra demand on them

The responses of teacher-participants also favour the use of cooperative learning in ITEPs Some of their comments are as follows. "It keeps the learners alert and active throughout the programme." "It provides an opportunity to share one's ideas with others" "Lecture intensive programme is like seeing a bottle of scent but in the cooperative learning programme, one actually gets the fragrance of scent" "It has more lively brainstorming sessions," etc One of the teachers wanted to familiarize all the other teachers of his school with cooperative learning and motivate them to use some of its components in their classrooms.

The implementation of this strategy becomes all the more important in view of an ever-increasing, unhealthy competition among students in the present world, which encourages them to perform tasks in a competitive, individualistic environment. The reward structures also discourage students from working in cooperation. This is not in conformity with the situation in which they will be required to work. Multi-disciplinary group work to solve problems in research and development and even in commerce is becoming increasingly important Cooperative learning prepares students for this ultimate goal.

REFERENCES

Keller, F S 1968 Goodbye Teacher. *Journal of Applied Behaviour Analysis, I*

Mathur, R.N. & Brahm Parkash. 1988 Individually guided system of instruction · A cooperative learning strategy. *Educational Technology* Vol 28, No 2. New Jersey, USA.

Postlethwait, S.N , Novak, J. & Murray, H.J 1972. *The Audio Tutorial Approach to Learning* (third ed.). Minneapolis, M N Burgess Publishing Co.

Ron Brandt. 1989 On Cooperative Learning · A conversation with Spencer Kagan *Educational Leadership*. Journal of the Association for Supervision and Curriculum Development, Vol. 47, No. 4.

APPENDIX

1 **Structure(s) of Atom and Molecules**
  (*i*) Structure of Atom
  (*ii*) Structures of Molecules

2. **Equilibrium**
  (*i*) Chemical Thermodynamics
  (*ii*) State of Equilibrium
  (*iii*) Electrochemistry

3 **Chemistry of Carbon Compounds**
  (*i*) Bonding
  (*ii*) Aromaticity
  (*iii*) Stereochemistry

4. **Reactions of Carbon Compounds**
  (*i*) Electric Effects
  (*ii*) Reactive Intermediates
  (*iii*) Organic Reactions

5 **Representative Elements**
  s- and p-Block Elements and their Compounds

6 **Transition Metals**
  (*i*) Transition Metals Chemistry
  (*ii*) Complex Compounds

7 **Biochemistry**
  (*i*) Biomolecules
  (*ii*) Biological Processes

8 **Chemical Kinetics**
  Kinetics and Mechanisms of Chemical Reactions

9 **Solid State**
  (*i*) Symmetry Elements and Crystal Structure

Stress Management for Students

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Abstract

You have to live your own life. You can decide to live either a happy life or a stressful one. You can live through the years with the attitude, "I will do my best and not bother about the outcome," or you can live a life full of fears, doubts and jealousy. The choice is yours. To be happy or to be under stress irrespective of anything. I repeat, anything.

What Is Stress?

ALL of us have some potential and capabilities We also have certain aptitudes and attitudes and demands are made on us by society We, as parents/teachers, make demands on our children. Most of the time when we make demands on our children, we have a tendency to forget that our children have their own capabilities The result is nothing but an imbalance between the potential of the child and our expectation and all this results in a stressful situation Stress can therefore be best defined as a *state of imbalance between demands made on us from outside sources and our capabilities to cope with them*

Some students lack the courage to acknowledge their weaknesses, to draw on their strengths and to analyze where they stand in relation to their dreams.

All of us have some element of personality or some habit with which we are not entirely satisfied This element of personality is more pronounced in students, especially when they are entering into the adolescent age-group. They dream and fantasize a lot At times their dreams fade into meaningless fantasies, and fail to produce successful results.

From the world of fantasies, when they come to reality and find their dreams shattered, they meet with what is termed as 'frustration,' one of the major causes of stress. These students do not have the courage to make a fair assessment of their personal resources including a realistic picture of where they stand on the road to success. They are not willing to accept their weakness They feel embarrassed

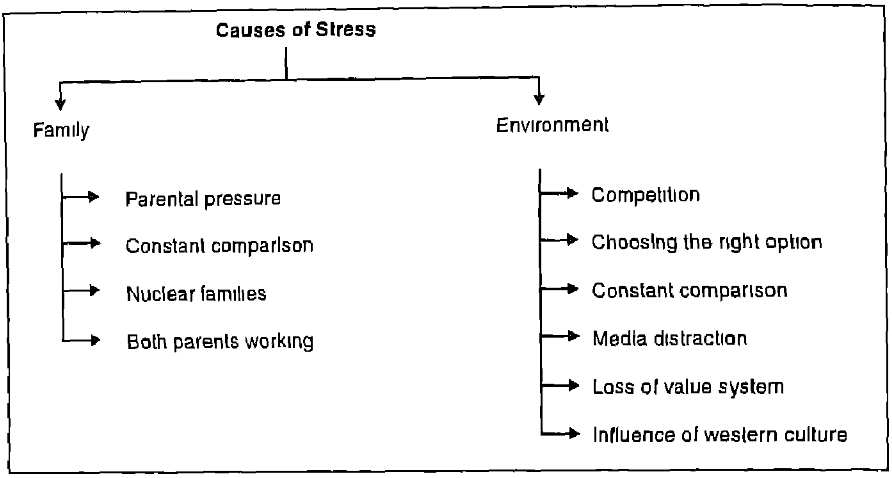
Since they are not able to accept their weakness, their approach is not at all realistic in nature and hence gives rise to a situation which is confusing as well as conflicting resulting in stress Peer pressure and pressure from parents and society form the main reasons or causes of this stressful situation for a student

Causes of Stress

But for a very few who have clear thinking, practically all students opt for Science or Commerce stream irrespective of their own potential They are not willing to accept the fact that they do not have aptitude for Science or Commerce Let us take an example of how stressful situations arise, say, when the students opt for a stream at a certain stage Presumably, Humanities stream is considered inferior by a majority of them, which is very sad. Not doing well in Class XI after opting for Science or Commerce becomes a cause of frustration and stress Peer pressure plays a major role at this point of time and children are not willing to heed, consequently giving rise to stress

Stress amongst adolescent students has been increasing these days because of various factors, some of which are enumerated below.

- Severe competition at all academic levels
- Parental pressure for excellence in performance irrespective of the potential of the student
- Uncertainty in choosing the right option
- Constant comparison at home, in school and within peer group
- Distraction as a result of media exposure
- Loss of value system
- Negative influence of western culture



- Nuclear families
- Both parents pursuing careers and not available to their children when they need them

Coping with Stress

Paul J. Mayer, a well known management expert has said, "Whatever you vividly imagine, ardently desire, sincerely believe and enthusiastically act upon must inevitably come to a pass ”

In a stressful situation the normal reaction of any human being is to imagine all the wrong things happening to him. This kind of reaction prevails more strongly in the young, impressionable mind of an adolescent who sees only hazy situations and is unable to take the right decision. His/her enthusiasm is lost and he/she lands in a depressive situation. Since he/she only sees the negative side of life, all negatives actually start happening to him/her.

It is truly a game of thoughts His/her thoughts become negative, his/her commands to the brain are negative and the reaction of the body thus is nothing but negative. And all this adds to an already existing stress.

A stress management programme which runs into three phases, enumerated below, can help and train a student in overcoming or facing stressful situations.

Three-phased Module of Training for Coping with Stress

First Phase . Cognitive Preparation

This phase is educational in nature and is designed to provide the students with a conceptual framework for understanding the nature of stressful reactions. During this phase the students learn what is stress and how it creates wear and tear. Students share their experiences with other students.

The sharing of experiences assures the students that they are not the only ones suffering from such a problem, there are many others in similar situations. They also learn that stress is a process of psychological appraisal rather than a factor inherent in the event itself This learning enables them to conclude that stress is caused as a consequence of certain events and individuals' reaction as well as perception of it

Through these messages the students begin to see that they can dilute a stressful situation if they are properly armed with the technique of handling it. Students in this phase of stress management record their physiological, emotional and behavioural reactions to stress as they experience them Students are trained to record their own maladaptive efforts to cope with stressful events such as excessive sleeping, watching TV, eating, etc They are taught to tabulate stress responses and examine them

Second Phase : Skill Acquisition and Rehearsal

Here the participants discover and review the coping process through small group exercises. A number of behavioural and cognitive coping skills are offered to the subjects for rehearsal The students are trained to engage in positive talk and set new goals They are trained to change the stress situations into challenges They learn to distinguish between stressful situations to be avoided, tolerated or overcome

Third Phase : Application and Practice of Coping Technique

Students are given an opportunity to practise coping skills during exposure to a variety of stresses. They practise stress management techniques in the targeted stressful situations and monitor their effectiveness Positive talk involving self into auto suggestions and encouragement becomes a guiding force for students to overcome stressful situations. It also enables the individual to confront stressful events with a clear plan and a clear account in mind before the stressful event becomes overwhelming.

A stress-free life is not possible in today's environment. All that we can do is to reduce it to a reasonable level, even to the level where it can play a positive role rather than adversely affect our health and abilities.

The general feeling is that tension or stress has a negative effect on our lives On the contrary, a certain amount of stress is healthy as it acts as a motivating factor and gives the required push to an individual to attain set goals.

All students suffer from anxiety and are stressful at some time or the other. The intensity, however, may differ from person to person. A certain amount of stress induces enthusiasm and learning becomes better provided the stress is given direction Parents and teachers play a vital role in the management of stress in a child There are many pressures on a child who is appearing in a board examination both at Class X and at Class XII level The moment a child enters Class X or Class XII, there is a sudden transformation in the attitude of the child, the parents and the teacher

Parents and teachers impose innumerable restrictions on this child, be it watching TV, playing, leisure time, phone, activities and functions in the school. Board exams have become synonymous with study and books and nothing else. It is abnormal as well as strange. This kind of reaction is universally present, whereas in our heart of hearts, we all know that a child who is studying all the time cannot give his/her best

This reaction on the part of the parents only adds to the already existing anxiety in the mind of the child and he/she starts developing cold feet. This anxiety leads to loss of confidence and, in severe cases, even to nervous breakdown The starting point of all this reaction is stress.

Managing stress with the above stated three-phased stress management technique can be complemented with some more suggestions which can work wonders on the psyche of a growing child and are worth giving a try The suggestions are as follows

Maintaining Optimistic Attitude

The attitude of fear of failure is the root cause of stress and related problems. It is the attitude of the student, which may promote stress.

• I don't want to do it	No chance of success
• I can do it	10% success
• I don't know how to do it	20% success
• I wish I could do it	30% success
• What is it?	40% success
• I think I might do it	50% success
• I might do it	60% success
• I think I can do it	70% success
• I can do it	80% success
• I will do it	90% success
• I did it	100 % success

It is important to train the students to be optimistic in approach and vision and have a positive attitude. Attitudes are habits of thoughts and habits can be acquired and learnt. But the action required for a sizeable change in habits and attitudes may not be really noticeable The result may take a long time to come through and sometimes may be intangible. Training can be given to acquire a positive attitude by adopting the following steps

- Ascertain who and what you are
- Find out what you want to become and where you want to reach.
- Plan out how you are going to reach your goal from where you are now.
- Keep monitoring and correcting your steps—specific, measurable, attainable, realistic and tangible

Goal Setting

A basic trait of human nature is to aspire, to achieve, to accomplish, to attain, to believe in the future rather than in the past. Improving performance propels continuous improvement. Continuous improvement adds to personal accomplishment, professional success and pride in the achievement

Set a goal which is SMART. Goals help in ensuring that time is spent on work that really matters If the child learns how to set priorities in achieving goals, stress management will be much easier

When goals are set they work in two ways You work on them and they work on you. Once a goal is set with firm and unequivocal belief, it can work wonders.

The greater the belief, the more rapid is the success If, however, the goals are not clearly defined, it can hamper the progress and hence cause stress

Successful people are the ones who have worked with goals, tangible goals, small goals and achievable goals. It is only then that they have been able to utilize their full potential, and even that full potential is only 25 per cent. You can imagine what role goal-setting plays, if you have to tap the 75 per cent balance of success

As the student recognizes his/her potential of achieving the set goal, his/her image automatically improves He/she learns to believe that he/she has great potential and tremendous abilities that he/she has not begun to use Train him/her to have belief in himself/herself and his/her capabilitiy Teach him/her to discover his/her unlimited potential. Tell him/her to stand in front of the mirror and say—*I am capable I can do it.* Teach him/her the power of thoughts which transform into words and then into action. Positive thoughts, affirmation and visualization supplemented by small weekly/monthly goals will help in reduction of stress to a very large extent, and when each victory is celebrated it will work like a magic tonic for success and hence reduce stress

Faith in Oneself

Faith in oneself stirs every dormant force within and pushes one to use one's full potential to reach set goals.

Teach the students to develop faith in the potentialities that they have in order to reach the set goals. This is possible when he/she has an understanding of his/her own self. He/she has to understand that he/she is the only one accountable for his/her performance, he/she is the only one who can accept responsibility for his/her success. Other factors may contribute to success but his/her success will result from primarily what he/she gives—the long hours of practice, the sacrifice to keep body and mind in condition and dedication to goals Any distraction or interruption destroying his/her attention will deviate him/her from his/her set goal and hence cause stress. *It is never too late to learn this*

The best way to guarantee reduction of stress is to get started on the job on hand NOW Two reasons account for failure relating to stress—children either never start or never finish Both these unproductive patterns fall under stressful situation. Several patterns of faulty thinking are evident if time is not managed properly The following guidelines will enable one to avoid to these pitfalls.

- Begin required work and continue without relying on "feeling like it." Getting started is often the most difficult part but once begun inspiration often follows Thomas Edison, the famous American inventor, has put it well when he said, "Genius is one per cent inspiration and ninety-nine per cent perspiration "
- Break the difficult task down into easy and logical steps to make it more manageable at each stage Getting started on the job and working systematically keeping the goal in mind

will give a sense of mastery that enables one to complete the job on hand with less stress.

Strive for Result, Not Perfection

Overemphasis on perfection nearly always brings negative consequences—immobilization, fear of making mistakes, discouragement and preoccupation with what others think rather than genuine work. Train the students to be result-oriented rather than being fussy about perfection

External Circumstances as Cause of Stress

Numerous circumstances outside the control of an individual can cause stress These can be competition, financial condition, sickness in the family, etc. Though difficult, students can be trained to refuse to let circumstances discourage them They need to be trained to commit themselves to thinking positively and seeing possibilities. They must welcome these outside circumstances as challenges to their creativity and as signs of progress.

Commitment to an attitude of positive expectancy is the key to a stress-free situation Refuse to let external circumstances become an excuse for inertia or decreased output Instead give demonstrations of how to cope with external circumstances and see the changes they produce. This attitude helps in transforming problems into upturns, stumbling blocks into stepping stones and hence in reduction of stress

Understanding Attitudes of Parents and Teachers

The basic human need, it is said, is to understand and appreciate. The traditional viewpoint on understanding takes into account a stable and an orderly way of doing things through established rules, procedures, regulations and principles This is called 'orderly way of understanding'

Based on the rationale of various studies, aspects of understanding is the systems approach, i e. breaking the whole in two parts first and then sensitizing it as a whole, and behavioural concept of understanding takes into account the integrative relationship between the two

Since students spend most of their time either in the school or at home, parents and teachers play a vital role in helping them to overcome stress The following guidelines should help

- The students are spoken to objectively and in warm tones.
- They are encouraged to express themselves objectively and freely
- They are motivated to use their potential and capabilities
- They are provided an open and free environment at home and in school

Students often feel stretched as they feel that there are many people who know them but very few who understand them. *Understanding has to be more of the heart than that of the mind.*

Intellectual identification with a person's feelings, thoughts and attitudes is essential in understanding the frame of mind of the student. Correct understanding of their feelings, being able to see beyond the obvious, the ability to communicate this understanding by verbal and non-verbal expression reduces stress and elevates self-respect and honour

When the student gets to learn that the teacher has also gone through what he or she is going through, it soothes his/her nerves Personal experiences of adults sharing something personal with them appropriately timed with humour is a fresh stress reducer A dry nature of teachers and parents aggravates the situation while a jovial personality helps in reducing stress

Power of Prayer in Stress Reduction

We are instruments in the hands of God We make out daily plans and when these plans do not work we feel stressed Students have to be taught to accept and be grateful without forgetting the theory of *Karma – Nishkam Karma* – as the *Bhagwad Gita* has taught us. Once we have done our best, nothing should worry us. We should not worry and feel stressed, if our daily plans fail

Above all, to make the students stress-free, *wear the crown of authority in your heart and not in your mind while dealing with them*

REFERENCES

Bloom 1971 Report of Pilot Project *Journal of Consulting and Clinical Psychology*

Das, Manoj. 1999 *Shri Aurobindo on Education* New Delhi NCTE

Joshi, Kireet 1997 *Education for Character Development* Dharam Hinduja International Centre of Indian Research.

Mayer, Paul J 1995 *Success Motivation in Personal and Professional Programme*

Sri Aurobindo Society 1996 *The True Teacher* Integral Education Series.

Problems of Educating Children in Tribal Communities

Case Study of a Village in Koraput District of Orissa

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Abstract

The problems encountered in educating tribal children are studied by many organizations including individual researchers, mostly at the macro-level. They do not reflect the micro-level reality In fact, there are as many problems as there are tribes The ground-level realities with regard to different aspects of education (enrolment, retention, dropouts, school infrastructure, etc.) often differ in varying degrees from place to place and tribe to tribe. The present study was therefore designed to view the problems at the micro-level and understand them against the backdrop of the macro-situation.

ORISSA occupies a unique position in the tribal map of India As per the 1991 Census, the tribals constitute 22 21 per cent of its total population The undivided Koraput district contributes 23.27 per cent of the State's tribal population with 23 Tribes out of the 62 Scheduled Tribes in Orissa.

Historically speaking, no specific effort was made to educate the tribals during the British Period (1757-1947). They were allowed to lead a carefree, independent existence with minimal interference from the administration.

Various committees, commissions, working groups, study teams were constituted during the post-Independence period to formulate policies, programmes and strategies for the promotion of education among the tribal communities, e.g Renuka Ray Committee, 1959, Elwin Committee, 1960, Indian Education Commission, 1964-66 (reported in the Government of Orissa's Tribal Welfare Department, 1994) As a result, the programmes such as establishment of Ashram Schools, preparation of primary textbooks in tribal languages, institution of scholarships, free supply of school uniform, study material, residential facilities, midday meals, etc were taken up. Despite these, formal education did not attract many children nor did they motivate the tribal parents to put their children in schools The apathy is attributed to the irrelevance of the elite model of formal education to the tribal needs The content and structure of the curriculum are alleged to be strongly biased in favour of the urban middle class and alienated the tribal child from the system (Srivastava, 1968, reported in Shastry and Mohapatra, 1999)

A host of reasons as to why the present formal education does not attract tribal children have been reported Some of these are . hidden costs of education; many teachers are not willing to work in tribal areas, the school building does not conform to the habitat design familiar to the tribal students (Ratha, 1983), teacher absenteeism, and the school sessions, holidays and timings do not match the socio-economic environment of the tribals. (Reported in Shastry and Mohapatra, 1999)

Need for the Study

The problems of tribal education stated above are based mostly on the perceptions, observations and research conducted at the macro-level, and may not speak for the micro-realities. The need for the present study, therefore, emerges—to look from a closer range into the factors that demotivate the tribals from pursuing formal education

Objectives

The objectives of the study are

- to study the ground realities, through case study approach, pertaining to the factors that demotivate tribal children and their parents from pursuing formal education,
- to scrutinize the problems of educating the tribal child at the microlevel to understand their macro dimensions.

Design of the Study

The research design was based on the principles of applied case study (Yin, 1994, reported in Jessop, 1998) Tools such as family and school information schedules, semi-structured interviews, observation, focus-group discussions and documentary analysis were used for the collection of empirical data. In addition to data collected from household heads, other informants included village leaders, teachers, a cross-section of villagers including women and school dropouts, school-going children and their parents. Accordingly, the basic information was collected in respect of all the 94 households and the village primary school.

The data collected through qualitative techniques, such as interviews, observation and focus-group discussions were used to describe the opinion, attitude and behaviour of the informants pertaining to the subject of the study. The quantitative data have been presented in terms of simple percentages to supplement and substantiate the qualitative reporting.

Case Profile

Talajaniguda, a village situated at a distance of about 12 kms to the north of Koraput town off the Rayagada Road, is under Mastiput Panchayat of Koraput Block. Large patches of denuded forest surround the village. A few fruit-bearing trees, like mango, tamarind, jackfruit and *mahua* are found in and around the village. A natural spring in the vicinity of the village is used for limited irrigation besides meeting the domestic requirements of the inhabitants. There are also three tube wells sunk by the government to supply potable water. Most people, however, prefer the spring water to that from the tube wells. The approach road to the village, constructed a decade back, is poorly maintained. There is a primary school building with five rooms and a teacher's quarters to the right of the approach road close to the village. A primary health centre functions without a doctor. A pharmacist manages it. No doctor has been posted to the centre for the last seven years or so. An energy lighting system has also been installed in the village.

Janiguda is an almost unitribe village. Out of 94 households 91 are of Bada Paraja and three are of Christians converted from the Dambo Caste. The total population in the village is 380 out of which 180 are male and 200 are female. There is a favourable male–female ratio. Though the data on income was not available at the time of the assessment, based upon observation and focus-group discussions during the field study, the investigator reported the quality of life of majority of the households as above the poverty line. The houses are mostly two-roomed with a verandah in front as well as at the back. These villagers, who are beneficiaries under the Indira Awas Yojana, have managed the new construction in front of their old one-roomed houses. Now the old houses are used as kitchen and the new ones as living rooms. Out of 51 children in the age group of 3-5 years, only nine children have been reported to have availed of the benefit of the Anganwadi Centre, which, however, does not work regularly. Out of 53 children in the age group of 6-11 years, only 21 are reported to be in school. The villagers look cheerful and have good physique. The average family size in the village is four. As large as 72.34 per cent of the households have two or less children. All these indicate a reasonably better quality of life.

A majority of the households are primarily engaged as cultivators, and/or as agricultural labourers Only 38 households are engaged as non-agricultural wage earners Six households are engaged in blacksmithy. Some reported grazing as their traditional occupation Thirty-seven ladies from comparatively richer families are reported to be engaged only in their household chores

Results and Discussion

Seven areas, viz., enrolment and retention, dropout, teaching workforce, support system, teaching-learning material in the school, curriculum transaction and school infrastructure are examined in order to understand the issues involved in educating the children of the target group

Enrolment and Retention at the Primary Stage

The primary school situated in the village also caters to the needs of two nearby Scheduled Caste habitations, viz Banglaguda and Ektaguda Only 16 tribal children (eight boys and eight girls) are enrolled in different classes from Talajamguda and a majority are from nearby habitations, constituting 72.58 per cent It is further seen that only 30.19 per cent in the relevant age group (5 + to 11 years) from the village are enrolled in the school The Gross Enrolment Ratio (GER) calculated, taking into account the number of children enrolled and the number of children in the relevant age group (5+ to 11 years), was found to be 30 19 per cent in the village as against 91.01 per cent in the district and 86.57 per cent in the block. The GER thus calculated in respect of boys is found to be 33 33 per cent when the corresponding figure is 97 38 per cent for the district and 91 17 per cent for the block In the case of girls it is 26.92 per cent when the corresponding figure is 84 17 per cent for the district and 81.55 per cent for the block (Perspective Plan for DPEP, Koraput, 1999).

From the point of view of enrolment at the primary stage, the state of the village compared with the district and the block is very poor. The reasons enumerated at the macro-level for poor enrolment among tribal children are almost the same as the reasons for the high rate of dropouts, e g economic role of tribal children, lack of conducive atmosphere at home and school (reported in Choudhuri, 1990). The study however, found that educated unemployment, lack of confidence in sample population in formal education, and weak preparatory system were the reasons basic to poor enrolment.

Dropouts

To assess the rate of dropout during and at the primary stage (Classes I to V), the students' attendance register for five consecutive academic sessions i e from 1995-96—1999-2000 was examined. It is noted that the dropout rate is as high as 75 76 per cent as the children moved from Class I (1995-96) to Class II (1996-97) However, the rate was found to be slower in the subsequent years i.e. from Class II to III (0 per cent) III to IV (25 per cent) and IV to V (33 33 per cent). The rate, taking all the five years together, is found to be as high as 87.88 per cent

From a survey, conducted on the eve of launching DPEP in Koraput, it was found that the dropout rate in the district at the primary stage, calculated on the basis of enrolment during the years 1994-95 to 1998-99, was 56 74 per cent in general It was 63 92 per cent in case of ST children (Perspective Plan for DPEP, Koraput, 1999). The dropout rate among the tribal children of Orissa at the primary stage is 72 per cent (*Anupam Bharat*, 30 April 2000)

The reasons behind the high dropout rate among the tribal children as reported by various researchers, journalists and field-level authorities are (*i*) poverty of parents (Kundu, 1990; Behura, 1990, *Anupam Bharat*, 30 April 2000); (*ii*) absence of Special Educational Programme for tribals (Kundu, 1990), (*iii*) difficulties faced in learning English, where it is a part of the curriculum (Kundu, 1990); (*iv*) difference between the home language and the school language (Behura, 1990, Kundu, 1990), (*v*) non-conducive atmosphere in the schools and hostels meant for ST children (*Anupam Bharat*, 30 April 2000); and (*vi*) teacher absenteeism (*Anupam Bharat*, 30 April 2000).

A set of reasons behind dropouts among the children, between six and 11 years of age, of Koraput district have been identified by the District Inspectorate of Schools through focus-group discussions, conventions, convergence meetings, workshops and in-depth studies (Perspective Plan for DPEP, Koraput, 1999) These are · (*i*) lack of primary school/alternative schooling facility available within reasonable distance, (*ii*) physical barriers between schools and habitations; (*iii*) schools without buildings; (*iv*) poor functioning of Non-Formal Education centres; and (*v*) inaccessible areas (without roads)

Educated unemployment is found to be a demotivating factor for formal education in this study. A middle-aged father whose son had dropped out before completing primary education, said, "Bhima (of my village) has passed matriculation and has no employment What will my son get out of going to school?"

Teaching Workforce

The school has two teachers against five classes; a Headmaster (male) and an assistant (female) The latter is untrained The lady teacher stays in the quarters attached to the school. She has been in this school for the last four years. The Headmaster comes from Koraput about 12 kms. away and has been in this school for the last six years. From the scrutiny of school records, including records in connection with midday meal and opinion of the villagers, it was felt that both the teachers are committed, sincere and honest to their job. The student attendance, however, is very poor

The pupil–teacher ratio (PTR) calculated taking into account the total enrolment in the school (62) and the number of teachers in position (2) is found to be 31 : 1 as against 33 . 1 in the district and 29 : 1 in the block The PTR of 31 · 1 is better than the national average i e. 47 : 1 (*World Education Report,* 2000, reported in

Rajput and Srivastava, 2001). The teacher–class ratio of 2 : 5 is not satisfactory and far from ideal (*i e.* 1 . 1)

Support System

The pre-school component of the Integrated Child Development Scheme (ICDS), which is considered to be the preparatory programme for primary education, is found to be extremely weak in the village There is one Anganwadi Centre in the village but it was closed on both the occasions of the visit of the investigator to the village The villagers lamented that the Anganwadi worker, who came from a nearby village, mostly remained absent.

Although the investigator could not have the exact enrolment position in the Anganwadi centre, the data depict that only nine out of the total 51 children of the relevant age-group (3 + to 5 years) in the village are attending the centre. Obviously, the remaining children do not This indicates that the preparatory programme does not serve its purpose This may be one of the reasons for poor enrolment in the school

Teaching – Learning Materials

The school is in dearth of teaching–learning and play materials. It has only two very old maps and an old broken globe. The school has never been supplied with essential teaching and sports material Teaching–learning materials (TLM) are essential components of the teaching process in making it attractive, participatory, joyful and thus effective Poor attendance in the school may partly be due to the lack of TLMs.

Curriculum Transaction

All the inhabitants of the village except the three Christian families (pre-conversion caste, Dambo) speak their mother tongue, 'Paraji', which is the language of communication among them The number of households in the village that do not know Oriya is 7 45 per cent, 23.40 per cent know it well, whereas 48 94 per cent have a manageable knowledge; 20 21 per cent reported their Oriya to be very poor.

The teachers reported that they had communication difficulties in teaching curricular subjects, such as Modern Indian Language (Oriya), social and environmental studies, and mathematics However, they could converse reasonably well in the language of their students

School Infrastructure

The school possesses five rooms of which only two are used as classrooms, one is used to store food material used for midday meals and broken furniture, etc and the other two are kept locked On one side of the school there is a teacher's quarters in which the assistant teacher stays, and on the other a hostel is under construction for girl children The school has a fairly big campus A villager donated the land to the school The front side of the school has green fencing covering the teacher's quarters and there are a few mango and other fruit-bearing trees in the schoolyard

The school has very little furniture There are only three chairs and two tables for the teachers There are 20 desks for the students The furniture is not in good shape The school does not have any almirah but an old and rusted trunk to keep records, etc. Three out of six rooms need minor repairs—both floor and roof. There is a tube well very close to the school campus

The EMIS unit of the Orissa Primary Education Programme Authority (OPEPA), Bhubaneswar, reports that in Koraput Block only 11 schools possess benches and desks (in three schools for all and in eight for some). Out of 117 primary schools, 25 schools possess chairs for all the teachers, 23 schools possess tables for all the teachers, and 67 schools have drinking water facility It is further reported that majority of schools in the block (67.52 per cent) and also in the district (55.63 per cent) possess two rooms only, 5 13 per cent of the schools in the block and 3 64 per cent schools in the district possess one room per class (reported in Perspective Plan for DPEP, Koraput, 1999)

The school, when compared with the majority of the schools in the block and in the district, is not so badly placed from the point of view of infrastructure

Major Findings and Implications

The major findings of the study are :

- The enrolment of children at the primary stage is very poor Only 30 19 per cent in the relevant age group (5 + to 11 years) are enrolled in the school. The gross enrolment ratio in the village is 30.19 per cent as against 91 01 per cent in the district and 86.57 per cent in the block.
- The dropout rate at the primary stage (between Classes I and V) is too high (87.88 per cent) as compared to that among the ST children of the district (63.92 per cent) as well as the State (72 per cent).
- The support system to primary education, i e the pre-school component (Anganwadi centre) in the village is extremely weak. Only nine out of a total 51 children of the relevant age group (3 + to 5 years) attend the centre The centre opens once in a blue moon
- The school is badly in need of essential teaching–learning materials
- The teachers find it difficult to be effective in teaching because of inadequate exposure of the students to the school language.
- The school is better than a majority of the schools in the block and in the district from the point of view of its infrastructure.
- Educated unemployment appears as a demotivating factor for formal education.

The findings of the study seem to have tremendous implications for teachers, curriculum designers, researchers, inspecting officers and above all the Government of Orissa in the Department of School and Mass Education. The following points are noteworthy

- Strengthening the support system is basic to reducing dropout rate and enhancing enrolment, particularly at the primary stage. Every school must have a pre-school centre; it needs to be made effective and where such a centre does not exist, a pre-school centre must form a part of the school with an additional teacher, preferably local.

- A policy, whether formulated at the district, state or national level, should not discriminate between schools managed by two government departments, particularly, in the matters that affect quality of education. For example, the scheme of Operation Blackboard does not cover the schools run by the Welfare Department The DPEP already launched in the district should cover all schools (e g schools managed by the Welfare Department as well as by the School and Mass Education Department) while making provision for teaching-learning material, teacher training, etc
- Teacher – class ratio of 1:1 as well as class – classroom ratio of 1:1 should be strictly maintained irrespective of the size of enrolment.

REFERENCES

Behura, N K 1990 Constraints in tribal culture for formal education In B. Chaudhuri (ed) *Tribal Transformation in India*, Vol IV New Delhi Inter India Publications

District Inspectorate of Schools 1990. *Perspective Plan for DPEP, Koraput* Koraput

D PI , Orissa 1979 *District Educational Profile, Koraput* Bhubaneswar

Govt. of India, MHRD, Deptt of Education 1992. *National Policy on Education (1986), Programme of Action (1992)* New Delhi

Govt. of Orissa, Welfare Deptt 1994 *Tribal Education in Orissa in the Context of Education For All by 2000 AD A Status Paper* Bhubaneswar

Kundu, M 1990 Tribal education in India - some problems In B Chaudhuri (ed) *Tribal Transformation in India*, Vol IV. New Delhi Inter India Publications

Rajput, J.S & Srivastava, VP 2001 Current trends and main concerns as regards science curriculum development and implementation In M Poisson (2001) *Science Education for Contemporary Society—Problems, Issues and Dilemmas, (Ed)* IBE The Chinese National Commission for UNESCO, Geneva, Switzerland

Shastry, V.B. & Mohapatra, B 1999 *Data Base on Tribals and Education in the Erstwhile Koraput District* Koraput Sabari Sanskruti Sansad

Yin, R K 1994 Case study research design and method. New Delhi Sage. In T Jessop (1998) *Case Study Research A Model of Best Practice at Loreto Day School, Sealdah, Calcutta* Education Sector Group, DFID (India).

School Organizational Climate and Job Satisfaction of Teachers

A Study

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Abstract

The present study was conducted with the objective of investigating the types of organizational climate existing in higher secondary schools and its overall influence on the job satisfaction of postgraduate teachers working in such schools. Organizational Climate Descriptive Questionnaire and job satisfaction scale were administered to the 256 postgraduate teachers working in 30 higher secondary schools in Tirupattur Educational District of Tamil Nadu. The analysis of data revealed that higher secondary schools of Tirupattur Educational District differed in their organizational climate to the extent that one could find six types of organizational climate, and there was a significant relationship between the school organizational climate and the job satisfaction of teachers.

THE destiny of India is being shaped in the classrooms, in which the teacher plays a significant role as per the Kothari Commission Report on Education 1964-66 A number of external and internal forces act upon a teacher and influence his/her behaviour in implementing the educational policy of a nation There is a dire need to identify the conditions necessary to influence the teachers in their working situation Human interaction gives a personal touch in the educational process The human interaction that takes place in the school plays an important role As the school is a web of interactions among people who live and work together in a particular way, this interactive environment of the institution leads to an organizational climate

The term 'organizational climate' has been variously understood in many ways such as 'the feel, 'the atmosphere', 'the environment', 'the zeal', 'the condition prevailing' and 'the tone of the institution ' According to Sullivan, Hurray Stack (1947), the organizational climate is, "the catholic patterns giving identity to subgroups and the interpersonal relations in a living organization " Argyris (1957), used the term 'climate' as 'the environment ' Halpin (1963) viewed it as "general flow of behaviour and feeling within a group " Seth, Swaran Pratap and Naveen Kumar Gupta (1983) considered organization climate as "employees' subjective impressions or perceptions of their organization", and Inder Praba Sharma and Gaba (1989) viewed organizational climate as "the interpersonal relationship within a group, between group and its leader."

The job satisfaction of teachers is as important as the organizational climate of any educational institution The focal importance of a teacher is not new to educational thinking In spite of this recognition, relatively little and reliable information is available regarding the job satisfaction of teachers In order to get an understanding of their job satisfaction, it is imperative to look into the views of experts

Job satisfaction refers to the way one feels about events, people and things in his/her working situation. According to Blum (1956), job satisfaction is "the result of various attitudes the person holds towards his job, towards related factors and towards life in general." Hence, job satisfaction is a pleasant and positive attitude possessed by an employee towards his job as well as his life.

Objectives of the Study

- To classify the higher secondary schools of Tirupattur Educational District in Tamil Nadu into different organizational climate schools;
- To compare the organizational climate of
  - (*i*) private higher secondary schools with that of government higher secondary schools, and
  - (*ii*) rural higher secondary schools with that of urban higher secondary schools,
- To analyze the job satisfaction of teachers working in higher secondary schools in respect of their sex, length of experience, age and marital status;
- To study the job satisfaction of teachers in relation to type of school,

type of management of school in which they worked and the subject they taught;

- To investigate the relationship between the organizational climate and the job satisfaction of teachers, and
- To study the levels of job satisfaction of teachers in different organizational climates

Sample of the Study

There are 42 higher secondary schools in Tirupattur Educational District, out of which 30 higher secondary schools were selected based on their willingness. More than 75 per cent of postgraduate teachers participated in the study, numbering 256, out of which 210 teachers were male

Tools Used

Two different types of tools were used . Organizational Climate Descriptive Questionnaire (OCDQ) developed by Motilal Sharma (1978), and Job Satisfaction Scale developed by the investigator

Analysis and Findings

The OCDQ consists of eight dimensions Disengagement, Alienation, Spirit, Intimacy, Psycho-physical Hindrance, Control, Production Emphasis and Humanized Thrust. These dimensions help to classify the organizational climate

The six types of organizational climate are open, autonomous, familiar, controlled, paternal and closed. The scores on each dimension are doubly normalized positive scores as compared with standard scores provided by Motilal Sharma Consequently the climate prevailing in each school is identified Likewise, the 30 higher secondary schools of Tirupattur Educational District were classified into six types of climate The details of classification are shown in Table 1.

TABLE 1

School Climate and Types of Management

S No	*Types of Climate*	*Types of Management*		*Total*	*Percentage*
		Private	*Govt*		
1.	Open	6	1	7	23
2.	Autonomous	1	1	2	7
3	Familiar	2	5	7	23
4	Controlled	2	–	2	7
5	Paternal	3	3	6	20
6	Closed	1	5	6	20
	Total	15	15	30	100

It is also found that the number of open climate schools are more in number in the private sector, while the familiar climates are found to be common in government schools It is interesting to note that the number of schools with paternal climate is equal in both the sectors In addition to this, more number of government schools are found to be closed climate, while there is only one such type in the private sector

A Likert-type scale to assess the job satisfaction of the teachers was constructed by the investigator. The tool consists of 30 items in its final form The overall extent of satisfaction is indicated by the total scores secured by the individual teachers. The mean and standard deviation of the job satisfaction are 96 44 and 10.79 respectively It is found that the overall mean score satisfaction is slightly above the neutral value, viz , ninety.

The job satisfaction of the teachers working under the six organizational climate conditions are subjected to analysis of variance (Table 2) The resultant F-value for df 5/250 is 6 90 which is significant at 0 01 level which confirms that there exists a strong difference in the job satisfaction of the teachers working under different organizational climates

The mean difference between the different sub-samples viz , between male and female, and married and unmarried are computed to be 3 86 and 0 26 respectively The corresponding 't' values are 1 98 and 0 19 Hence, by looking into the mean values of male and female teachers regarding job satisfaction, it is concluded that female teachers are more satisfied than their counterparts. With reference to the marital status of the teachers and their job satisfaction, it is concluded that marital status has no influence on their job satisfaction (Table 3).

With reference to the type of school, that is, rural–urban, and Government–Private, the mean differences of job satisfaction are 0.06 and 2 94 respectively and their corresponding 't' values are 0 04 and 1 95 which are found to be less than the table value and it is concluded that neither the location of school nor the type of management of school causes any significant difference in their job satisfaction (Table 3).

The mean difference in the job satisfaction of the teachers working in boys',

TABLE 2

ANOVA for Job Satisfaction

Sources of Variation	*df*	*Sum of square*	*Means square*	*F*	*Significance at 0.01 level*
SS among	5	3496.47	699.29	6 90	S
SS within	250	25337.68	101 35		(Table value 3 08)

TABLE 3

Significance of Mean Differences regarding Job Satisfaction among Different Sub-samples

Sub Samples	*N*	*M*	*SD*	*Md*	t *Value*	*Significance at 0.05 level*
1 (i) Male	210	95.55	11.79	3.86	1.98	S
(ii) Female	46	99.41	12.04			
2 (i) Married	219	97.92	12.01	0.26	0.19	NS
(ii) Unmarried	37	97.66	10.94			
3 (i) Rural	66	97.92	12.07	0.06	0.04	NS
(ii) Urban	190	97.86	11.79			
4 (i) Government	134	96.26	10.58	2.94	1.95	NS
(ii) Private	122	99.19	12.69			
5 (i) Boys	68	99.91	10.49	4.15 (between i & ii)	1.94	NS
(ii) Girls	39	95.76	10.74	1.75 (between ii & iii)	0.88	NS
(iii) Mixed	149	97.51	12.59	2.20 (between i & iii)	1.47	NS

girls' and mixed type of schools are tested for significance by taking the following pairs boys–girls, girls–mixed and boys–mixed. The respective mean differences and corresponding 't' values are found to be 4.15, 1.75, 2.20 and 1.94, 0.88 and 1.47 respectively (Table 3). The computed 't' values in the above three cases are found to be insignificant and, consequently, it is concluded that the teachers working in boys', girls' and mixed schools hardly differ in their job satisfaction -

The teachers were grouped according to the subject they taught such as language teachers, maths and science teachers, and teachers of other subjects The mean differences of the three groups taken as pairs such as language–maths, science–other subjects, and language–other subjects are 1 72, 2 58, and 0 86 respectively The corresponding 't' values, namely, 0.87, 0.91 and 0 39 are found to be insignificant. Hence it is concluded that the subject which they taught did not cause any significant difference in their job satisfaction (Table 4)

To know the relationship between the teachers' experience and their job satisfaction, the investigator computed a product-moment coefficient of correlation with the use of scatter diagram. The computed 'r' between these two variables was found to be –0 02, which is negligible. Hence, the investigator concluded that there exists no relationship between the job satisfaction of teachers and their experience However, it is to be noted that as teachers gain more experience, their approach to job satisfaction takes a negative turn

In order to know the organizational climate which contributes more to the job satisfaction of teachers, the means and standard deviations of the job satisfaction scores of teachers belonging to different climates were computed (Table 5).

Among the mean satisfaction of teachers in different types of climate, open climate contributes a higher level of mean job satisfaction, therefore, it is concluded that the teachers working in open climate have more satisfaction than the teachers of any other type of climate

Findings

- The higher secondary schools of Tirupattur Educational District have

TABLE 4

Job Satisfaction of Teachers in Relation to the Subject Taught

Category of Teachers	*N*	*M*	*SD*	*Md*	*t Value*	*Significance at 0 05 level*
(i) Language	57	98 48	12 97	1.72 (between i & ii)	0.87	NS
(ii) Maths and Science	126	96.76	11.05	2 58 (between ii & iii)	0 91	NS
(iii) Other Subject	73	99 34	12.12	0 86 (between i & iii)	0 39	NS

TABLE 5

Types of Climate and Mean Job Satisfaction

S No	Types of Climate	N	Mean	SD
1	Open	60	103.87	9.84
2	Autonomous	24	92.58	6.68
3	Familiar	58	97.69	12.50
4	Controlled	16	95.13	10.76
5.	Paternal	45	95.47	9.06
6.	Closed	53	95.51	9.14

all the six types of climate viz., open, autonomous, familiar, controlled, paternal and closed.

- Open climate exists in a greater number of private schools and familiar climate in government schools.
- There exists a significant sex difference in the job satisfaction of teachers in favour of female teachers
- There is no significant difference in the job satisfaction of married and unmarried teachers, nor of rural and urban teachers.
- There exists no significant relationship between the location of work the type of management under which they work the length of their experience, the subject they teach and job satisfaction.
- The organizational climate and the job satisfaction of teachers is very high
- The teachers working in an open climate have a very high level of job satisfaction.

Conclusion

The organizational climate differs from school to school. The job satisfaction of teachers differs significantly in relation to the type of climate An open climate is helpful for a very high level of job satisfaction among postgraduate teachers of higher secondary schools Except for the sex of teachers, the other variables viz., marital status, location of school, type of school, type of management in which they work, experience of teachers and the subject they teach do not affect their job satisfaction. Teachers and headmasters should be provided inservice training in human relations and school facilities should be improved by the appropriate authorities to achieve a good school climate and a higher job satisfaction among teachers

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REFERENCES

Andrews J H M 1965 What school climate conditions are desirable *The Bulletin, 13*

Argyris, Chris. 1957 *Personality and Organization* New York Harper and Row

Bernard, N & Kulundaivel 1976 A study of job satisfaction among graduate teachers in Coimbatore city *Journal of Educational Research and Extension,* 13(2)

Blum, M L. 1956 Industrial Psychology and Its Social Foundations New York Harper and Row

Gupta, Arun K and Kapoor, D R 1983 & 1984 A study of professional values among teachers in different organizational climates at 10 + 2 stage. *Journal of Educational Planning and Administration,* 16 (3 & 4).

Halpin, Andrew W & Crofts, Don. B 1963. The Organizational Climate of School. Chicago · Midwest Administration Centre, University of Chicago

Holdway, Edward A 1978. Facet and overall satisfaction of teachers *Educational Administration Quarterly,* 14(1).

Pandey, Saroj 1989 Organizational climate and teacher morale *Journal of Educational Planning and Administration,* 3 (3 & 4)

Seth, N K , Swaran Pratap & Gupta Naveen Kumar 1983 Job satisfaction and organizational climate among University teachers. *Journal of Higher Education* 9(2)

Sharma, Inder Praba & Gaba, A N 1989 Organizational climate of government and privately managed higher secondary schools · A comparative study *Journal of Educational Planning and Administration* 3 (3 & 4).

Sharma, Motilal 1978 Technical Handbook for School Organizational Climate Descriptive Questionnaries Surat : South Gujarat University.

Sullivan, Hurray Stack 1947 *Conceptions of Modern Psychiatry.* Washington · William Alanson White Foundation

Bridging the Gap between Research and Classroom Practices in Mathematics Education at the School Stage

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Abstract

More often than not, research in mathematics education remains isolated from classroom practices in our country. Mathematics at the school level is taught in a mechanical and stereotyped way where strategies of teaching are product-oriented rather than process-oriented and where students are hardly involved in the teaching-learning process actively. The curriculum load is heavy. Abstractions are introduced at the early stages and with the logic of the discipline predominating in the place of the psychology of learning, it has assumed the status of an esoteric discipline. The principles and concepts are left mystified leading to the backwardness and phobia of the students regarding the subject. A majority of the students fail in mathematics as a result This paper takes into consideration the research findings of five manipulable variables—need to reorient teachers, need to reorganize curriculum, need to adopt appropriate instructional strategies, need to foster students' aptitude and attitudes and need to increase parental concern for their wards' progress in the subject—to support its arguments in respect of bridging the gap between research and classroom practices in mathematics teaching

MATHEMATICS is a logical science It is also an exact science with a highly organized and systematized body of knowledge Its processes involve encoding and decoding of many concepts and abstractions It is a "vehicle to train a child to think, reason, analyze and to articulate logically" (Ministry of Human Resource Development, 1986) Many concepts and principles are to be demystified in the course of its teaching-learning process to enable its easy understanding by students. Concepts form building blocks in it and hence teaching of mathematical concepts goes a long way in making the subject easy and interesting

Mathematics is an interesting subject if students' participation is ensured in its learning. As mathematics is a subject of significance by itself and also concomitant to the other subject areas, it is a compulsory subject at the school level as it should be Since students of different abilities have to study this subject, its curriculum load should be realistic and its methods of teaching-learning should be appropriate, not to speak about the need to match the content difficulty level of the subject to the cognitive growth levels of students.

Mathematics, by and large, is taught in a stereotyped and mechanical way in schools. "Experience has shown that the majority of students normally fail in mathematics at the end of Class X" (NCERT, 2000) Lack of understanding of the subject would create backwardness and phobia in the students. The result is that the students are not only scared but would also like to shun the subject There are many reasons for the failure and backwardness in the subject, which have to be tackled from many fronts One such way to tackle the problem is investing research results in the teaching-learning process It is from this perspective that an attempt is made in this paper to suggest ways and means of bridging the gap between research in the subject and its classroom practices

More often than not, somehow research in mathematics education has not become an input in classroom practices in our country As a result, classroom practices are relatively isolated from research and are embedded in conventional methods of teaching of the subject. The criticism that the techniques of teaching of the subject are product-oriented rather than process-oriented is not without basis. Many times teachers are unmindful of the need to actively involve the students in the teaching-learning process in the subject.

In this perspective the research findings relating to a few variables are reviewed to suggest ways and means of bridging the gap between research and classroom practices in the subject The variables selected are . (*i*) reorienting mathematics teachers for classroom practice, (*ii*) reorganizing mathematics curriculum for classroom practices, (*iii*) adopting appropriate instructional strategies in mathematics for classroom practices, (*iv*) fostering aptitudes and attitudes of students for the subject to relate them to classroom practices, and

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This paper was presented at the CASTME-UNESCO-HBCSE International Conference on Science, Technology and Mathematics Education for Human Development organized in Goa during 20–23 February 2001 (*v*) increasing parental concern for their wards in the subject to support classroom practices. The variables selected here are manipulable and the studies chosen in respect of them are random in the sense that they have not been selective.

(*i*) *Reorienting the Mathematics Teacher for Classroom Practices*

The mathematics teacher is an important functionary in mathematics education. If he/she lacks the needed qualification and training, he/she would not be able to cope with his/her job expectations He/she should also be an adequately motivated person with a fascination for the subject He/she must enjoy teaching the subject thereby revealing that he himself/herself has aptitude for the subject With a teacher with confidence, interest, involvement and commitment, much of the subject is learnt by the students. An indifferent and apathetic teacher and a teacher without confidence would be a source of confusion and lack of interest and motivation for the students Perhaps, with a good teacher the subject could be made so interesting and enjoyable that such experiences would become unforgettable for the students.

Many studies have found that the personality of the teacher and his/her interaction and rapport with students play a significant role in the mathematics achievement of the students Some found that the teachers' skills, preparation, and instructional ability related positively with their students' achievement. Some studies have also revealed that the attitude of the teacher towards mathematics and his/her encouragement of students were also found to be related to the students' mathematics achievement

Learning is an active process, which has to be ensured through a variety of activity-based methods The tasks such as active involvement of the learners, development of concepts and principles in them and their reapplication to stop their depletion and deterioration, development, maintenance and sustenance of interest and motivation and also fostering attitudes and aptitude for the subject could be best done by the teacher of the subject The Secondary Education Commission Report (1953) pointed out that "the best curriculum and the most perfect syllabus remain dead, unless quickened into life by the right method of teaching and the right kind of teacher"

In this sense, the mathematics teacher is a kingpin in the process of mathematics teaching. The place of the mathematics teacher both from the point view of empirical evidence that is available in his/her support and the common-sense point of view is unequivocal Therefore, the mathematics teacher is to be prepared and reoriented to do his/her job in mathematics classroom situations on the lines that it would increase the learning of his/her students in the subject.

(*ii*) *Reorganizing Mathematics Curriculum for Classroom Practices*

The selection of curriculum, its representation, sequence and pace should give a chance to the student to interact with the mathematical ideas and to make those ideas and skills a part of his/her personality (Leser, 1980). Its load should be realistic

(NCERT, 2000). The mathematics curriculum should have close relation to application of mathematics in day-to-day life situations Jain and Burad (1988) found lack of child-centered teaching and overburdened and uninteresting curricula to be the causes of failure in mathematics at the secondary level. Kasat's (1991) study also found lack of interest in mathematics at the high school level to be a cause of failure in it Chel (1990) found gaps in knowledge of mathematics concepts and difficulty in understanding maths language to be the causes of under-achievement

Mainka (1983) found in the case of Class V pupils that (*a*) mathematical concepts developed better in pupils good in language, and they did not develop to the full form in pupils who were poor in language, (*b*) concepts in higher mathematical hierarchy could not be developed unless the lower concepts were acquired; and (*c*) concept learning played an important part in learning of mathematics. NCERT agrees with this view that mathematics learning is badly affected due to the problem of the language in which books are written/developed and that concepts not properly communicated through the language of the textbooks or content not properly understood by students creates problems *(National Curriculum Framework for School Education. A Discussion Document, 2000)*. In line with this trend of thinking, Chel (1990) found that gaps in the knowledge of concepts and difficulty in understanding mathematics language were causes for under-achievement in the subject.

Many researchers found defective textbooks to be the cause of low achievement in mathematics. The Report, *Learning Without Burden* (1993) highlights the fact that too many abstractions are introduced all at once in mathematics textbooks right from the start of a child's career with scant attention paid to well-known facts about development of mathematical thinking in children and that in the middle and higher classes, the tendency to follow the logic of the discipline of mathematics rather than the psychology of learning as the basis of the curriculum becomes more dominant and therefore mathematics acquires the image of an esoteric discipline which has little application in the real life of the child.

Thus the tendency of making curriculum counter-productive in the teaching-learning process of the subject should be avoided. The importance of teaching lower concepts before higher concepts are taught, the fact that the readability and comprehensibility of the language of mathematics textbooks should be kept within the easy reach of students are important. The curriculum load should be realistic as it should be relevant to the practical needs of the everyday life of students Mathematical abstractions have to be demystified in classroom situations to increase students' interest and also to save them from the psyche of phobia of the subject.

The needed pedagogical constructs in this respect have to be introduced at the preservice and inservice education programmes to enable teachers to learn the strategies of concept teaching so that they are confident when they have to teach concepts in classroom situations

However, introduction of too many concepts at the lower levels appears not to be a sound strategy In this respect the following recommendation of the Report, *Learning Without Burden* (1993) is to be implemented with all seriousness

> Mathematics curriculum for primary classes in all parts of the country (must) be reviewed with a view to slowing down the pace at which children are required to learn basic mathematical concepts, and broadening the scope of primary mathematics to include areas other than number work (e.g. space- and shape-related concepts and problem-solving). The tendency embedded in the syllabus and textbooks of primary mathematics to accelerate children's mathematical skills by teaching them mechanical rules at the expense of understanding and intelligent application ought to be discouraged in future syllabi and texts

(iii) *Adopting Appropriate Instructional Strategies in Mathematics for Classroom Practices*

Instructional strategies occupy an important place in the teaching-learning process of mathematics Several studies have been conducted in this area and these studies have not yielded conclusive results

Singh (1992) found that computer-assisted instruction was always superior, but the gains were more in the case of good students. Nagar (1988) found that mathematics could be taught more effectively through the use of computers and computer-assisted programmes, and that the contribution of electronic devices such as computers and calculators in increasing understanding in mathematics is indisputable. The results of many more studies that have established the superiority of computer-assisted instruction are not being quoted only for want of space.

Another strategy that has established its effectiveness in the area of teaching mathematics is programmed instruction. Rao (1983), and Praba (1992) have found programmed learning in mathematics to be superior to the conventional method of learning

The results of the relative effectiveness of the discovery versus expository methods in teaching the subject are inconclusive. Rao (1986) found no difference in the effectiveness of guided discovery and expository techniques of teaching mathematics in the case of Class IX students.

Nelson (1973) found the expository method to be significantly more effective than the discovery method on the criterion of ability to infer mathematical concepts

On the other hand, Munoya (1984), Namitha (2000), Miyan (1982), found the discovery method to be better than the expository method Narayanan (1990) found guided discovery to be better than learning by repetition

However, the effectiveness and ineffectiveness of a teaching strategy depends on various factors apart from the factors that are included in a study. In this sense, a given strategy is effective for a group or a content area or a type of cognitive skill, etc Hence, a blanket conclusion that both the strategies of teaching the subject are equally effective or equally ineffective is an oversimplified generalization that does not take into consideration the specific uses of a strategy For example, the World Bank (1980) upholds such specific use of the discovery method thus "Studies have consistently shown that the expository method is just as effective in imparting knowledge as the discovery method although the discovery method seems to be more useful in the development of higher cognitive abilities such as logical reasoning and creative thinking " Some have even elevated it as a pedagogical watchword "Education should concentrate more on the unknown and the speculative, using what is known as a basis for extrapolation. . Teachers should aim to give students a firm grasp of their subjects in such a way as to promote students being autonomous and self-propelled thinkers who will proceed to learn on their own when their formal schooling is ended" (Bigge, 1982) The quotation given above amply signifies the pre-eminence of the discovery method

Hence, computer-assisted instruction, programmed instruction, discovery method, etc. are to be preferred in teaching mathematics in classroom situations However, in many cases the software needed in different languages and for different syllabi is not available. The teachers are also to be trained in using computers, and this is more so in the case of teachers working in rural areas Similar blocks remain in the area of programmed instruction Also, teachers have to be trained in discovery-oriented strategies fully as they apply to different content areas in the subject of mathematics. Such activities could be taken up in inservice education programmes for teachers.

(iv) *Fostering Aptitude and Attitudes for the Subject in Students to Relate Them to Classroom Practices*

Aptitude is important because it predicts future success and also because it can be fostered Aptitudes can be developed especially in the very early years and they need not be innate Similarly, positive attitudes, which are pre-dispositions in the positive direction, could pave a good grounding for the learning of the subject if moulded positively for the subject.

Several studies have found mathematical aptitude related to mathematical achievement Several other researchers have found a relationship between mathematical thinking and mathematics achievement.

Further, mathematical aptitude was found to be a predictor of mathematics achievement in several studies

The findings of many other studies also reveal a high positive relationship between mathematics achievement and mathematical thinking In a doctoral study conducted by Nanitha (2000) under the supervision of the author of this paper, it was found that Class IX students of higher mathematical aptitude group ($N = 41$) had a higher mean level of achievement in mathematics ($M = 27.26$) as compared to the students belonging to lower aptitude group ($N = 39$), who have had only a lesser mean level of achievement ($M = 39.00$) ($P < 01$). Nanitha, like many other researchers, measured mathematical aptitude using verbal reasoning, numerical ability, abstract reasoning and space relations subtests of DAT.

Activities like participation of students in mathematical clubs, mathematical quizzes, mathematical olympiads and other related mathematical aptitude fostering activities would promote their achievement in mathematics Hence, schools and teachers should encourage students to participate in such cocurricular programmes. Teachers also can give them mathematical puzzles which could be solved by the students after some brainstorming to have their aptitude fostered

Developing attitudes towards the subject was found to be an important input in the learning of mathematics Kapur (1997) opines that through improving attitudes of students towards mathematics, their achievements in the subject could also be improved Rosaly (1992) found that the attitude of high school students towards the learning of mathematics and their achievement in mathematics are highly correlated. Harinathan (1992) similarly found that high school students who had positive attitudes towards mathematics homework had better achievement and, therefore, he opines that teachers should give such homework in the subject that develops positive attitudes towards the subject. Pal (1989) and Jain (1979) also found that attitudes towards the subject played a vital role in its achievement

Teachers and parents can develop favourable attitudes towards the subject by encouraging, clarifying, providing individual instruction and by giving students such exercises that would lead to their success. Parents, by involving children in the life-related situations where mathematics is used and by entrusting them with such tasks that involve doing mathematics in their home and work situations can encourage them.

(v) *Increasing Parental Concern for Their Wards in the Subject to Support Classroom Practices*

Though parental concern for their wards' learning of mathematics appears to be an obscure variable, its contribution has been quite significant as it has been revealed in many studies The research studies of Kaaya (1989), Scherer (1990), and Tomlison-Keasy, (1990) revealed that parents' support, concern and encouragement of children, parental level of education, parental level of expectation had significant effect on the mathematics achievement of their children.

Tomlison-Keasy and Little (1990) found that higher achievers in mathematics had parents who were well educated and took time to encourage their sons and daughters. They concluded that cognitive skills themselves do not guarantee educational and occupational achievement, and that a constellation of intellectual skills, personality characteristics, parental values are necessary if children's early propensities are to be transformed into high-level achievement. Kasat (1991) concluded that lack of help from parents was one of the reasons for failure in mathematics in Marathi-medium high school students in Palghat. Thind (1990) found education of mother to have a significant effect on the problem-solving abilities of the children in Classes VII and IX. However, positive persuasion from parents would reinforce their wards' interest and motivation, while their negative nagging would create disgust, and disinterest in the subject.

Kapur (1997) writing the trend report on mathematical education in the *Fifth Survey of Research in Education* rightly points out that "in mathematics education, both research and development should go together and it is true that the utilization of research should be considered as important as doing research " Thus research in mathematics and its classroom practices are not two isolated activities They form a continuum, where each contributes for the restructuring of the other They are mutually reinforcing activities The presently existing gap between them should be bridged. To help teachers and researchers in this respect, there is need for partnership programmes between schools and research organizations with shared interest and shared values, where teachers get the needed inputs for their professional development that could be in turn useful in classroom practices, and the researchers get the needed feedback to 'rethink' on their research Such programmes should be a part and parcel of the inservice education of mathematics teachers

REFERENCES

Abdul Majeed Ahmad Sultan. 1991. A study of maths achievement of 12th grade students of GSCE in Irbid, Jordan, in relation to their gender, IQ, mathematical thinking and SES. *Obiedat* Unpublished Ph.D. thesis. Bangalore Bangalore University.

Bigge, Morrish L 1982. *Learning Theories for Teachers.* Cambridge Harper & Row, New York.

Chel, M M 1990. Diagnosis and remediation of under-achievement in compulsory mathematics of *madhyamik* examination in West Bengal. Unpublished Ph D thesis SC University of Calcutta

Jain, D K 1979 A study of significant correlates of high school failures in mathematics and English with special reference to Jammu Division. Unpublished Ph.D thesis in education Jammu Jammu University

Jain, S L & Burad, G L 1988. Low results in maths in secondary examinations in Rajasthan Independent study Udaipur Udaipur State Institute of Educational Research and Training

Kaaya, M I 1989 Identifying variables supportive to achievement in maths A comparison of African-American high school students in San Francisco Bay Area. *Dissertation Abstract International,* 1 (92A).

Kapur, J.N. 1997. Mathematics education : A trend report. In NCERT (Ed.) *Fifth Survey of Educational Research 1988-92,* Vol. 1. New Delhi : NCERT.

Kasat, B S. 1991 In-depth study of the causes of large failures in mathematics at SSLC examinations of Marathi medium high school students in Palghat Tehsil. Unpublished M Phil thesis. Pune . Institute of Education.

Harinathan, D 1992 Attitudes of high school students towards homework and their achievement in mathematics Unpublished M.Phil thesis in education Madurai Madurai Kamaraj University

Lester, FK 1980 Research on mathematical problem solving In Richard Shumway (Ed). *National Council of Teachers of Mathematics* Virginia.

Mainka, G.K. 1983 Acquisition of concepts in mathematics of pupils at primary school level and its relation to some personal and environmental variables of the pupils. Unpublished Ph.D thesis in education. Bombay Bombay University

Ministry of Human Resource Development (GOI) 1986. *National Policy on Education-1986* New Delhi

Ministry of Human Resource Development (GOI). 1993 *Learning without Burden* New Delhi

Ministry of Education and Social Welfare (GOI) 1972 *Report of Secondary Education Commission* New Delhi

Miyan, Mohammad 1982 A study to examine the effectiveness of methods of teaching mathematics in developing mathematical creativity Unpublished Ph D thesis in education New Delhi Jamia Millia Islamia

Munoya, Paul Malima 1991 Relative effectiveness of discovery and expository methods of teaching on mathematics achievement NCERT (Ed) *Fourth Survey of Research in Education 1983-1988,* Vol 1 New Delhi · NCERT

Namita, Rebecca Ruben. 2000 Effectiveness of guided discovery and expository methods of teaching mathematics on the mathematical achievement of Class IX students of high and low mathematical aptitude. Unpublished Ph D thesis. Bangalore . Bangalore University

Nagan, Nirmala 1988 Effectiveness of computers in teaching mathematics in schools Unpublished M.Phil thesis Delhi . University of Delhi

Narayanan, Shankara, B L 1997 Achievement in mathematics under guided discovery learning and reception learning conditions. In NCERT (Ed) *Fifth Survey of Educational Research 1988-92,* Vol. 1 New Delhi · NCERT

Nelson, B A 1973. Effect of analytical-global and reflectivity, impulsivity, cognitive style on the acquisition of geometric concepts presented through emphasis or no emphasis and discovery and expository lessons *Dissertation Abstract International,* Vol 33 (9)

NCERT. 2000 *National Curriculum Framework for School Education · A Discussion Document.* New Delhi

Pal, Asutosh 1989. A critical study of some affective outcomes of the students as predictors of their mathematical ability Unpublished Ph D thesis, New Delhi Jamia Millia Islamia

Prabha, Rashmi 1992 An investigation into the effectiveness of programmed mathematics in relation to some socio-academic variables Unpublished Ph.D thesis. Patna Patna University

Rao, A V Raghavendra 1986 An introduction to relative effectiveness of guided discovery and expository approaches of teaching mathematics Unpublished Ph D thesis. Waltair Andhra University

Rao, T G 1983. A comparative study of programmed learning and conventional learning methods in the instruction of mathematics A psychological approach Unpublished Ph D thesis Osmania University

Rosaly, A 1992 The relationship between attitude of students towards mathematics and acheivement. Unpublished M Phil dissertation Madurai . Madurai Kamaraj University

Scherer, M.E 1990 Factors contributing to women's success in mathematics Selected teacher and family background variables *Dissertation Abstract International,* 6 (1540).

Singh, R D 1992 Effectiveness of teaching mathematics through computer-assisted instruction and conventional method of instruction on cognitive and non-cognitive variables Unpublished Ph D. thesis Guru Ghasidas University

Thind, S K 1990. Effectiveness of teaching mathematics through computer-assisted instruction and conventional method of instruction on cognitive and non-cognitive variables Unpublished Ph D. thesis. Guru Ghasidas University

Tomlison-Keasy. 1990 Developing our intellectual resources for the 21st century Educating the gifted. *Journal of Educational Psychology,* Vol 3.

Tomlinson-Keasey, C & Little, T D 1990 Predicting educational attainment, occupational achievement, intellectual skills, and personal adjustment among gifted men and women *Journal of Educational Psychology,* Vol 3

World Bank 1980. *Education Sector Policy Paper* Washington, D.C

Agricultural Training Needs of School-going and Non-school-going Children in Tribal Areas of Rajasthan

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Abstract

Tribal children need to develop their skills and improve their knowledge of agriculture. Strategies need to be evolved for them to learn agricultural methods and hence its inclusion in the school syllabus is necessary. The authors of this paper have investigated the Dungarpur District of Rajasthan to study the educational needs of tribal children and have given suggestions for organizing trainings.

EDUCATION is a process of changing the behaviour pattern of people. Broadly speaking, it includes thinking and feeling as well as overt action Trow (1950) expressed that need is a condition of a deprivation of which the individual may or may not be aware The satisfaction of need is beneficial and, perhaps, necessary for the organism. A need is usually accompanied by a certain amount of more or less adequate striving behaviour in the nature of drive The first step in the development of an educational programme is to assess and articulate the needs of prospective learners

Efforts to promote change in conditions of free choice participation are successful only to the extent they are focused on the important needs of the people and are effective in helping people to meet these needs under a voluntary condition of participation People concern themselves with programmes of change only when they think that the programme is valuable to them in meeting personal, family, group or community needs which they themselves recognize. The elements of need, therefore, become a central concern in rural programming. The central problem of successful programming is to identify accurately what people want, what they think they need, and actually do need and then get these items into a realistic, well-organized and concrete series of forceful activities. This may probably be called a programme. An effective programme to promote change is developed through an approach to individuals and to groups by finding people's needs and arranging actions that lead to meeting them.

For agricultural production and to improve effectiveness in farm technology, farmers and farm women are provided need-based training in various programmes of the State and Central Governments

These trainings are particularly imparted because the farmers and farm women have not received formal and vocational education at the early stage. If this type of need-based training is given to school-going children along with their school education they can also work on the farms Therefore, tribal children should also receive adequate vocational and need-based professional training during formal schooling

To assess the training needs of such students it is essential to know what type of training is needed for them, and the opinions of the parents and teachers in the tribal area With this aim, the present investigation was undertaken with the specific objective of studying the educational needs of the tribal children and suggesting a suitable curriculum syllabus to organize training for concerned organizations

Methodology

Aspur panchayat samiti of Dungarpur District of Rajasthan was identified for the purpose of this study Out of 32 villages falling within a radius of 10 kms, 22 villages were randomly selected for identification of parents of school-going and non-school-going children. Sixty respondents were interviewed for identification of the training needs of the children. The sample size of parents of school-going children was 60. Thus the total size of the sample was 120 respondents

Self-constructed interview schedule was used in collection of relevant information using face-to-face interview technique. A total of 13 statements were listed out to find out the training needs of tribal school-going and non-school-going children as expressed by their parents The training needs statements were put on a three-point continuum scale i e highly important, important and least important and were assigned scores of three, two and one respectively Parents of school-going and non-school-going children were interviewed.

For each statement M S were found out on the basis of degrees of importance as expressed by the parents of both the categories The statements were ranked in descending order i.e., the statement with the maximum weight was given first rank and so on The results are presented in the table on page 57.

Findings

A perusal of the table shows that school-going as well as non-school-going children's parents realized the need for knowledge about improved seeds and their treatment at the first place After it came soil testing and reclamation, grain storage, improved methods of sowing— practices ranking second, third and fourth for receiving training by non-school-going children with their respective mean scores being 2 52, 2 33 and 2.32

These were followed by weed control, plant protection, and appropriate time and technique of irrigation which were placed at fifth, sixth and seventh positions by the parents of non-school-going children for imparting training to their children.

In the case of parents of school-going children, second, third and fourth priority for imparting training to their children went to the aspects of care and maintenance of diesel pumps/electric motors, soil testing and reclamation, and grain storage The mean scores of these aspects were recorded as 2 53, 2 48 and 2.43 respectively These items were followed by land preparation, improved methods of sowing, and balanced use of fertilizer and FYM which were ranked as 5 5, 5.5 and seven respectively

The table further shows that the three least wanted aspects of agriculture identified by both the categories of respondents for training of their children were right time and techniques of crop harvesting, horticultural training and nursery raising which were ranked as 11, 12.5 and 12 5 respectively The reasons for giving least importance to these aspects may be that the people of this area do not follow these practices and do not have much idea about these aspects.

Dangi (1997) also reported in line with the findings of the present study that the top preferred agricultural courses which were suggested by tribal educated youth for developing vocational syllabus were crop production, dairying, seed production techniques, plant protection techniques including pesticides and weedicides, maintenance of agricultural machines and establishment of agro-service centres

The results of the present study are also in conformity with those of Intodia (1974) who revealed that more than 80

Priorities of Parents of Non-school-going and School-going Children regarding Training Needs in Agriculture

S.No.	*Statements*	*Parents of Non-school-going Children*		*Parents of School-going Children*	
		M S	*Rank*	*M S*	*Rank*
1	Soil testing and reclamation	2.52	2	2.48	3
2.	Land preparation	2.17	9.5	2.42	5.5
3.	Knowledge of improved seeds and their treatment	2.53	1	2.67	1
4.	Improved methods of sowing	2.32	4	2.42	5.5
5	Approximate time and technique of irrigation	2.25	7	2.33	10
6	Care and maintenance of diesel pumps/electric motors	2.18	8	2.53	2
7.	Weed control	2.28	5	2.35	9
8	Plant protection	2.27	6	2.37	8
9	Balanced use of fertilizers and FYM	2.17	9.5	2.38	7
10	Right time and technique of crop harvesting	2.15	11	2.13	11
11	Grain storage	2.33	3	2.43	14
12.	Horticultural training	1.98	12.5	2.08	12.5
13	Nursery raising	1.98	12.5	2.08	12.5

per cent respondents expressed their needs about use of different kinds of seeds, types of fertilizers, improved farm animals and development of irrigation sources as most important Apparently, the agricultural occupational needs were perceived to be most important by a large majority of the respondents who were themselves farmers.

Conclusion

It is concluded that the topmost aspect of agricultural occupation which was identified by both types of respondents in the present study was improved seeds and treatment which should be included in the syllabus so that their children could be trained by the teachers in the school. The items identified as least important were right time and technique of crop harvesting, horticultural training and 'nursery raising.

Recommendations

It is recommended in line with the findings that in the tribal area of Dungarpur District, Rajasthan, the tribal school-going children be trained in the following aspects of agriculture so that they may help their parents in scientific agriculture as well as work on their farms with the latest techniques in agriculture. They may guide other farmers of the village also The preferred aspects wherein children could be trained are .

1 Knowledge of improved seeds and treatments
2 Soil testing and reclamation
3. Grain storage
4. Improved methods of sowing
5 Weed control
6 Plant protection
7 Care and maintenance of diesel pumps/ electric motors

All other aspects could also be taken into account as per priority This could be done if these are included in the course curriculum of the children Therefore, it is also recommended that these aspects could be incorporated in their syllabus. This may also lead to self-employment of the children in agriculture eventually

REFERENCES

Dangi, K L 1997. Agricultural occupational needs and aspirations of educated rural youth for better employment generation in southern Rajasthan Ph D thesis (unpublished) Udaipur Rajasthan College of Agriculture, R A U

Intodia, S L 1974 Educational needs, interests and aspirations of adults in rural communities of Udaipur district. Ph.D. thesis (unpublished). University of Udaipur.

Trow, William Clark. 1950 *Educational Psychology.* Cambridge Houghton Miffin Co

Environmental Education through Media

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Abstract

The scope of education has expanded from its formal definition to include various media which have potential to inform, create awareness and educate. This is important particularly in the context of developing countries where formal education still remains a luxury. Since environmental conservation is an important goal of development, all media have been reined in to create awareness and provide education. The large-scale degradation of the environment requires enlightened citizen action to check the problem. Educational institutions too have a role to play in this regard. A combination of formal environmental education in schools and media education through various channels can be an effective strategy in sensitizing people towards environmental issues.

Sweet is the lore which nature brings,
Our meddling intellect
Mis-shapes the beauteous forms of things,
We murder to dissect
Enough of science and of art,
Close up those barren leaves,
Come forth and bring with you a heart
That watches and receives.
—William Wordsworth *(The Tables Turned)*

AN intricate web of messages and information woven by the media threatens to overpower the traditional learning method, often accomplishing the task. Education is no longer a watertight compartment closed in on its integral components but is rather a fluid concept, affecting and being affected by the variegated media. The elements of media are not mere vehicles of communication, they often go one step further by conditioning thought and determining behaviour Apart from the power of messages they convey, media gain a tremendous momentum owing to their emotional content, informal setting, ability to create a blend of education and entertainment and the refreshing effect they impart to education While the schools have been reduced to isolated hillocks in a sea of media information, it is time to use an effective mix of both to achieve an unprecedented velocity in converting an information-poor people to more aware, educated and liberated literates This is especially true of the developing countries, where learning through a formal education system is a luxury. These countries have a long way to go before the expensive schooling system can be utilized to spread awareness through its rigid and formal system of education to a majority of its working class

The Comenius concept of school as adopted today remains a closed concentration of human beings for learning in a systematized manner, often within the boundaries of a rigid syllabus and limited to the confines of the instructor's experience The media messages in contrast are available to anyone, anywhere, encompassing a wide range of topics and enriched by the participation of a number of resource persons Hence the task now remains to build up a coherent relationship between education and the media, evolve a rational plan of action, and balance instruction through the two means

> Thought should be given more systematically than in the past to ways and means of combining organically and harmoniously the objectives, activities, productions and methods of implementation both of education and of contemporary communication technologies. In the years to come, all those who are keenly concerned with the problems of education and communication and are aware of their interdependence will be seeking to build bridges between the two reports and to institute a practical operational symbiosis between the two cultures, that of the school and that of the media each with its own individuality and without order of preference (Morsy, 1984)

Environment and Education

Learning is not confined to the institutions of education protected in its virgin state by teachers and administrators Rather, it is a dynamic process which happens all the time in the life of a person, not being restricted to his/her formal school years Since learning takes place everywhere the environment and the process of learning are wedded to one another. The quality of environment determines the learning opportunities available therein Awareness requires education, and awareness of environmental deficiencies requires environmental education It is a two-way process—education can provide the impetus for improving the environment and an improved environment can provide enhanced learning opportunities

> Environmental education is an integrated process which deals with man's interrelationships with his natural and man-made surroundings, including the relation of population growth, pollution resource allocation and depletion, conservation technology and urban and rural planning to the total human environment. Environmental education is a study of factors influencing ecosystems, mental and physical health, living and working conditions, decaying cities and population Environmental education is intended to promote among citizens awareness and understanding of the environment, our relationship to it and concerned responsible action necessary to assure our survival and to improve the quality of life (United States Senate Report on Environmental Education Act)

The doomsday ecologists point out that overpopulation, vanishing of wildlife, overgrazed ranges turning to deserts, forests to barren lands, erosion, pollution of land, water and air, and a host of other issues only point out to the impending disaster that we have triggered off It is awareness, reason and rational action that offer a visible alternative to the continued misuse of the environment—a case for environmental education The solution surely rests with the government, which must implement the National Environmental Policy with more vigour But the government ultimately depends upon aware citizens to indicate the direction and implementation of public policy

Environmental protection has not yet received due attention from citizens and a public policy on it will only be implemented successfully if the citizens take up the issue in all its intensity. The solution to the present-day environmental crisis does not lie either with the government or with the scientists but with a well-educated citizenry. It is only an aware citizenry that can play a vital role in environmental preservation The immediate issue is to replace short-term attitudes to environment which see it as a commodity to be exploited, with attitudes which look to sustainable rather than maximal level of progress and development The route to the long-term attitudes invariably is education. The media must, therefore, through its popular reach inform people about the environmental problems, relationships and help them to sort out facts from emotional rhetoric

Environmental education should lead to the desire of directing one's activities towards improving the quality of the environment. It should enable an individual to perceive and solve the existing problems In this regard it is the colleges and universities which have a very important role to play as they contain a more mature class of students on the one hand and well developed faculties for research and development of environment on the other They are also training grounds for both the future environmental experts who will deal with problems in the field and future academicians who will be teachers of environmental education in primary and secondary schools. But it often becomes too difficult to achieve this multidisciplinary objective.

Clay Schoenfeld underscored the problem in the seventies thus :

> If there is any agency capable of an objective role in determining the country's basic land and water problems, it is possibly the university Yet the ordinary posture of a university may not be optimum for the task, for the university has become composed of highly individualistic professors organized into departmental enclaves and marked increasingly by the break up of knowledge in little pieces

Though the situation of environmental education may look dismal, there is reason for optimism. Many of the colleges and universities have started environmental education either as part of the formal curriculum or as an informal component. They represent the awareness of the problem that is the first step towards the solution. Overnight changes cannot be made in the process of teaching and learning The fact that the first steps towards change have been taken in schools all over the country towards promotion of environmental education is in itself an encouraging attitude Schools which have taken up measures to promote environmental education should involve students in the practical aspects of environmental education and training. They must stimulate them to participate in immediate projects like cleaning up their neighbourhood, parks and streets. Academic education is essential, yet it must be combined with practical projects. As long as students are working and discovering themselves, they can appreciate the nuances of their learning better.

Sustained interest in environmental conservation is possible only if a long-term programme of education is instituted at all levels of education, even at the kindergarten and elementary levels. What is required is sensitivity training in environmental issues and perhaps a dash of what Schumacher (1973) calls "Buddhist economics" which emphasizes the importance of right livelihood and reverence for life. In higher education, an interdisciplinary trend is needed Elementary and secondary education programmes must rely on other aids of communication and teaching like radio, television and cinema to bring novelty and interest into an otherwise dull routine. Any resource outside the purview of formal education must become involved in the task of increasing environmental education and concern among people In this context, the potentiality of the reach of mass media can be effectively utilized to evoke concern and a positive attitude towards environment among the viewers. This is essential because it is not just the student who must be educated about the environment We cannot wait for our student population to grow up and save our environment. This sort of environmental education is necessary right from the preschoolers to adults, since the involvement of the whole community is necessary to improve the quality of the environment

Communication Support for Environmental Education

Communication media offer a tremendous potential in making people aware of their environment and the associated problems, not only in schools but in all walks of life The elements of media have reached millions of people with messages concerning the environment and has helped to place environment preservation and improvement among top national and international concerns. They are also most effective in teaching the out-of-school population. Media can foster environmental awareness and encourage people's participation in issues of its conservation It has the potential to create community forums on environmental issues. Local projects, national trends and the latest communication technology, all can set the pace for better understanding of the environment

> The goals of environmental education programmes on media should be to provide the learner with direct experience in the real environment, so that he may develop an awareness and appreciation of the factors and interrelationships operating in the environment, leading to an ecological understanding of man's oneness with his environment and how he both affects it and is affected by it. Programmes should encourage the learner to test the values of the society as well as his own, so that he may ultimately select those values in which he believes and which are relevant to him in dealing with his environment He must be free to investigate alternatives and choose among them Based on his knowledge and beliefs, the learner should be guided to make rational decisions leading to constructive action on environmental problems. Environmental education programmes should seek to develop a commitment both towards the environment and towards learning that will last beyond the years of schooling and will form a lifelong concern. (Hawkins and Vinton, 1973)

A communication campaign for environmental education could involve the following steps in the formulation and presentation of the programme.

1. *Environmental Interpretation*

The first step in any programme for environmental education should involve a deliberate explanation of the environment and its components and the concerned issues to the receiver Tools include television, radio, print media, even displays, leaflets, labels, films and talks. People must get familiar with their environment and the conservation issues involved The aim must be to promote a proactive, ecologically sound, conservationist type of interpretation. Cut and dried instruction is best avoided and emphasis must be to encourage the receiver to find things out in a more personal way

2. *Reintroduction*

The next step is to reintroduce people to their own familiar environment Whereas environmental interpretation introduces people to new environments, 'reintroduction' seeks to explain to people details of their own inherent environment, which will help them to appreciate it better. The objective is to create a bond between the residents and their environment, to prevent any nest-fouling and to encourage positive action towards conservation of the immediate neighbourhood

3 *Sensitivity Training*

The third step is to enable people to develop a sensory awareness of the place and a feel for the environment Stress here should be on emotional appeal to the aesthetic issues in environment. The goal is to increase awareness and provide a foundation for personal growth as well as for descriptive, analytical and experimental activities This sort of a campaign can be effectively pursued by the various environmental centres set up to promote greater awareness on core issues. In fact the public Broadcasting Environment Centre was set up in the United States in the seventies as a non-profit organization for the very purpose It is worthwhile to quote here its objectives which are as follows.

- To respond to the national mandate, to raise the level of knowledge and understanding of the environmental status and to present viable alternatives
- To create an innovative system of environmental education to reach large and diversified audience quickly, at the primary, secondary, higher and continuing education levels.
- To increase perception of the environment as a totality, to communicate understanding and recognition of the parts, including man himself, and to stimulate the action necessary for man to move towards what he perceives to be a more desirable condition of life.

Such organizations solely devoted to the cause of promoting environmental education through media is the need of the hour. In the long term this crusade towards the establishment of an nationwide environmental classroom through media may lead to the development of an environmental religion which will involve recognition of non-economic environmental issues as factors in development and nurture of human identity For those who think it best to sacrifice the environment and live in "God's own junkyard" these nuances of environmental education must be applied only more rigorously. What is needed today is a whole lot of dedicated "environmental communicators" who can help shape attitudes of the people towards conserving the bountiful nature and prevent its many hazards As Meining (1971) demands

> We need a much larger body of citizens whose eyes have been opened to see their surroundings with far greater appreciation and who thereby are not only enriched by what is good but appalled by that which is bad, and refuse to countenance the continued despoliation of their surroundings. The media have an important role to play in environmental education, conservation and sustainable development

A Comparison between Public Education and Public Communication

Elements	*Public Education*	*Public Communication*
Who	Teachers	Communicators (writers, actors, entertainers etc)
What	Syllabus, mainly subjects of education, rigid content	All kinds of information; flexible content
To whom	A strict age group in each class	Heterogeneous mass audience
By what means	Lectures, demonstration, audio-visual aids, etc	Radio, newspapers, television, etc
In what setting	Classroom (formal)	Omnipresent (informal)
When	Strict schedule, generally 9 00 a m to 4 00 p m,	24 hours a day, all year round
For what purpose	Self-fulfillment	Self-fulfillment, information, entertainment for people, commercial gains for communicators
With what effect	Helps one to become a better person	Helps one to become a better person

REFERENCES

Hawkins, Donald E. & Vinton, Dennis A 1973 *The Environmental Classroom* U.S A Prentice Hall

Meining, D W 1971 Environmental appreciation *Western Humanities Review,* 25, 1-11 New York · Oxford University Press

Moisy, Zaghloul 1984 *Media Education* UNESCO

Schumacher, E F 1973 *Small Is Beautiful.* New York . Harper and Row

Shoenfeld, Clay 1971 The Third American Revolution. *Everybody's Ecology* Barns

Wordswoith. W 1977 *The Poems,* Vol I (ed J O. Hayden) Hammondsworth; Penguin.

Emotional Intelligence and Its Development

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Abstract

The present paper highlights the concept of emotional intelligence and its development. Emotional intelligence is a type of social intelligence which refers to the ability to set a goal in life, work towards achieving it, negotiate it, and feel empathetic towards others. A key set of characteristics makes up emotional intelligence, such as self-awareness, self-regulation, motivation, empathy and social skills. Academic intelligence has little to do with emotional life. Emotional intelligence is more important than IQ. IQ contributes about 20 per cent to the factors that determine success in life. The remaining 80 per cent is contributed by emotional intelligence. Studies have shown that IQ is inherent but emotional intelligence can be developed and nurtured even in adulthood and prove beneficial to one's health, relationships and performance. In order to survive in a fast-changing and competitive world, every person needs to develop and nurture emotional intelligence.

It is with the heart that one sees rightly what is essential is invisible to the eye

—ANTOINE DE SAINT-EXUPERY

TO say that a person is 'more intelligent' than another can only mean that he/she acts more intelligently most of the time Research has continually shown that grades at school or a high IQ cannot predict unerringly who will be successful and who will not In the day-to-day world, no intelligence is more important than the interpersonal. High IQ offers little to explain the different destinies of people with roughly equal promise, schooling and opportunity. Practical skills and the ability to handle people that include a part of the art of managing emotion contribute a lot towards any success Dr Daniel Goleman (1995) called it 'emotional intelligence.'

Our emotions are vaster than our minds They contain our histories, every chapter and verse of energy, experience, deep understanding and relationship in our lives Emotions make up that which we are, shapes our mind as well as the entire personality pattern They enter our human system as a source of energy that radiates and resonates.

Nature of Emotion

The word 'emotion is derived from the Latin word *'emover'* which means the spirit that moves us That energy is the transmitter and recorder of all feeling, thoughts and actions It determines what we dream about and what we are drawn to, believe in and committed to In other words, emotions are the currents of energy that are within us. Emotion activates our lives, shapes our perception and behaviour, which then emanates outwards and influences others Emotion simply deals with feelings such as anger, love, joy and sadness. On the whole, emotions are illogical—that is why they are called 'emotion ' Hence the impasse between emotion and reason, heart and head, emotional intelligence and intelligence quotient—call it what you will

Many times we read lines like 'Let emotion not sway your duty towards your kingdom ' But what is life without emotion? Dull! According to Aristotle, what is wanted is appropriate emotion, feeling proportionate to circumstance Suppressed emotions and too much control over them become pathological as in immobilizing depression, overwhelming anxiety, raging anger, manic agitation says Dr Daniel Goleman

Thus emotions are reactions consisting of physiological reactions, subjective cognitive states and expressive behaviours. Every emotion has a cognitive component and every thought is influenced by emotional factors Both emotion and thought are basic attributes, which in the human being are intimately meshed in a dialectical unity (Thomas and Chess, 1980) Differentiated psychological traits of older children and adults clearly reflect the interaction processes that involve emotion and thought The findings of Isen and Daubman (1984) suggest that persons in a good mood are able to process information effectively, but they are less motivated to do so when in a neutral mood. When emotions are guided constructively, they enhance intellectual performance Isen (1991) has shown that when the subjects are treated warmly while being administered IQ tests, they score higher as compared to when they are treated harshly In short, these appear to be important links between emotion and cognition, between the way we feel and the way we think

Emotional Intelligence

People who have control over their lives can manage and know their feelings well and read and deal effectively with other people's feelings While the people who do not have control over their emotional life fight inner battles that sabotage their ability to focus on work and think clearly (Goleman, 1995) Emotional intelligence is a type of social intelligence which involves the capacity for recognizing our own feelings and those of others for motivating ourselves and for managing emotions well in ourselves and in our relationships. Various characteristics make up emotional intelligence such as self-motivation, ability to control impulses, regulate moods and keep distress away from swamping the ability to think.

The term was coined in 1990 by Peter Salovey, a Yale psychologist and John Majer of the University of New Hampshire It is regarded as the prime parameter to measure an individual's chance of success in life According to Goleman (1996) an individual's success at work is 80 per cent dependent on emotional intelligence and only 20 per cent dependent on IQ

More recently, Salovey and Mayer (1989-1990) defined the construct of emotional intelligence as the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to the use this information to guide one's own thinking and actions. Goleman (1995) described emotional intelligence as an ability that includes self-awareness, impulse control, persistence, zeal, self-motivation, empathy and social adeptness. Bernet (1996) operationalized emotional intelligence by focusing on optimal responses that result from the ability to attend rapidly, appropriately and without effort to the experienced feelings. An inability in this area leads to self-damaging emotions and behaviours In other words, emotional intelligence refers to the skillfulness with which one can mediate and regulate the emotions of oneself and others

In a descriptive study, Hatzes (1996) found emotional intelligence to be a critical factor contributing to the academic and employment outcomes of this group of individuals Emotional intelligence in Hatzes' study, was conceptualized to include ability to manage emotions, persistence, interpersonal skills, empathy, positive reframing, and explanatory style

Knowledge of a person's own emotions is the basic element of emotional intelligence. If people cannot recognize their own emotions, it leaves them at other people's mercy and creates feelings of distress Persons having the quality of self-awareness know about their limitations and strengths which allows them to exercise self-control It permits people to develop coping mechanisms during intensely emotional states Self-aware people have a high degree of self-confidence and also a knowledge of their abilities.

Knowing one's own emotions and those of others is not sufficient to become emotionally intelligent; managing emotions appropriately is necessary. People who know how to manage their emotions can also channel them in useful ways. It is an important aspect for leadership qualities. People who excel in managing emotions can bounce back far more quickly from life's setbacks

Self-motivation is necessary for emotional intelligence A number of people are motivated by external factors such as status in an organization or achievement motivation People having high achievement motive remain optimistic under unfavourable conditions too People having this skill tend to be more productive

Empathy is an ability to 'feel for' other people Persons who are empathetic in nature consider others' feelings along with related factors in the process of making intelligent decisions. People who have empathy are better in professions like teaching, sales and management They have also a deep understanding of cultural and ethnic differences

Social skill or the ability to handle the emotions of other people is an essential aspect of emotional intelligence Much of the art of relationship is "emotional interactivity." It is a skill to interact with other people effectively. People who excel in such type of skills do well in anything that depends on interaction with others

Emotional intelligence yields potential for learning practical skills. Various components of these skills are given in the following table

SELF-AWARENESS	
Knowing one's internal state, preferences, resources, and intuitions	
Emotional awareness	Recognizing one's emotions and their effects
Accurate self-assessment	Knowing one's strengths and limits
Self-confidence	A strong sense of one's self-worth and capabilities
SELF-REGULATION	
Managing one's internal state, impulses, and resources	
Self-control	Keeping disruptive emotions and impulses in check
Trustworthiness	Maintaining standards of honesty and integrity
Conscientiousness	Taking responsibility for personal performance
Adaptability	Flexibility in handling change
Innovation	Being comfortable with novel ideas, approaches, and new information
MOTIVATION	
Emotional tendencies that guide or facilitate reaching goals	
Achievement drive	Striving to improve or meet a standard of excellence
Commitment	Aligning with the goals of the group or organization

Initiative	Readiness to act on opportunities
Optimism	Persistence in pursuing goals despite obstacles and setbacks
EMPATHY	
Awareness of others' feelings, needs and concerns	
Understanding others	Sensing others' feelings and perspectives, and taking an active interest in their concerns
Developing others	Sensing others' development needs and bolstering their abilities
Service orientation	Anticipating, recognizing, and meeting customers' needs
Leveraging diversity	Cultivating opportunities through different kinds of people
Political awareness	Reading a group's emotional currents and power relationships
SOCIAL SKILLS	
Adeptness at inducing desirable responses in others	
Influence	Wielding effective tactics for persuasion
Communication	Listening openly and sending convincing messages
Conflict management	Negotiating and resolving disagreements
Leadership	Inspiring and guiding individuals and groups
Change catalyst	Initiating or managing change
Building bonds	Nurturing instrumental relationships
Collaboration and Cooperation	Working with others towards shared goals
Team capabilities	Creating group synergy in pursuing collective goals

Characteristics of People with High Emotional Intelligence

Peter Salovey (1990) has identified five characteristics of persons with high emotional intelligence. They are :

(*i*) Knowing one's emotions
(*ii*) Managing emotions
(*iii*) Motivating oneself
(*iv*) Recognizing emotions in others, and
(*v*) Holding relationships.

Some other characteristics of people with high emotional intelligence according to many psychologists are :

Emotional Self-awareness

- Improved recognition and naming one's own emotions
- Better able to understand the causes of feelings
- Recognizing the difference between feelings and actions

Managing Emotions

- Better frustration tolerance and anger management
- Fewer verbal put-downs, fights, and classroom disruptions

- Better ability to express anger appropriately, without fighting
- Fewer suspensions and expulsions
- Less aggressive or self-destructive behaviour
- More positive feelings about self, school and family
- Better at handling stress
- Less loneliness and social anxiety

Harnessing Emotions Productively

- More responsible
- Better able to focus on the task at hand and pay attention
- Less impulsive, more self-control
- Improved scores on achievement tests

Empathy · Reading Emotions

- Better able to see another person's perspective
- Improved empathy and sensitivity to others' feelings
- Better at listening to others

Handling Relationships

- Increased ability to analyze and understand relationships
- Better at solving problems in relationships
- More assertive and skilled at communicating
- More popular and outgoing; friendly and involved with peers
- More sought out by peers
- More concerned and considerate
- More 'pro-social' and harmonious in groups
- More sharing, cooperative and helpful
- More democratic in dealing with others.

Developing Emotional Intelligence

Can emotional intelligence be developed? Yes. Emotional intelligence can be developed say many child psychologists. A child in its early years needs a role model, be it a parent or a teacher, to set a good example Yoga is another means of achieving emotional stability that many schools have introduced in their curriculum

Psychologists suggest the following ways to develop emotional intelligence

- Good role models—teachers, parents, etc. By observing these role models children, gradually learn how to analyze and cope with life.
- Direct reading classes on personality development, value education, etc.
- Reading personality improvement books and articles are quite helpful.
- One can learn from his/her own life experiences if he/she is introspective.
- Attending workshops and seminars on personality development and the like.
- Media programmes (for children) can be very informative and educative.
- The positive aspect of religion can offer a lot of solace and guidance.

According to Karan F Store and Harold Q Dillehunt (1978), emotional intelligence can be enhanced by developing the following.

- *Self-awareness* : observing yourself and recognizing your feelings, building a vocabulary for feelings; knowing the relationship among thoughts, feelings, and reactions
- *Personal decision-making* : examining your actions and knowing their consequences; knowing if thought or feeling is ruling a decision, applying these insights to issues such as sex and drugs
- *Managing feelings* : monitoring 'self-talk' to catch negative messages such as internal put-downs; realizing what is behind a feeling (e g., the hurt that underlies anger); finding ways to handle fears and anxieties, anger and sadness
- *Handling stress :* learning the value of exercise, guided imagery, relaxation methods
- *Empathy* understanding others' feelings, concerns and perspective, appreciating the differences in how people feel about things.
- *Communications* : talking about feelings effectively; listening well as well as asking questions; distinguishing between what someone does or says and your own reactions or judgment.
- *Self-disclosure* · valuing openness and building trust in a relationship; knowing when it is safe to talk about your private feelings
- *Insight* · identifying patterns in your emotional life and reactions; recognizing similar patterns in others
- *Self-acceptance* : feeling pride and seeing yourself in a positive light; recognizing your strengths and weaknesses, being able to laugh at yourself.
- *Personal responsibility*· taking responsibility; recognizing the consequences of your decisions and actions, accepting your feelings and moods, following through on commitments (e g. studying)
- *Assertiveness* : stating your concerns and feelings without anger or passivity
- *Group dynamics* cooperation, knowing when and how to lead, when to follow.
- *Conflict resolution* how to fight fair with other children, with parents, with teachers, the win/win model for negotiating compromise.

According to W.T Grant Consortium (1992), emotional intelligence can be developed by developing the following skills.

Emotional Skills

- Identifying and labelling feelings
- Expressing feelings
- Assessing the intensity of feelings
- Managing feelings
- Delaying gratification
- Controlling impulses
- Reducing stress
- Knowing the difference between feelings and action

Cognitive Skills

- Self talk—conducting an 'inner dialogue' as a way to cope with a topic or challenge or reinforc one's own behaviour.
- Reading and interpreting social cues—for example, recognizing social influences on behaviour and seeing oneself in the perspective of the larger community.
- Using steps for problem-solving and decision-making, for instance, controlling impulses, setting goals, identifying alternative actions, anticipating consequences.
- Understanding the perspective of others.
- Understanding behavioural norms (what is and is not acceptable behaviour).
- A positive attitude towards life.
- Self-awareness—for example, developing realistic expectations about oneself

Behaviour Skills

- Non-verbal— communicating through contact, facial expressions, tone of voice, gestures, and so on.
- Verbal—making clear requests, responding effectively to criticism, resisting negative influences, listening to others, helping others, participating in positive peer groups.

Cornerstones of Emotional Intelligence

The four cornerstones of emotional intelligence are

(*i*) Emotional Literacy
(*ii*) Emotional Fitness
(*iii*) Emotional Alchemy
(*iv*) Emotional Depth

Emotional Literacy

This involves developing a clear and useful vocabulary for emotional literacy and recognizing, respecting and valuing the inherent wisdom of feelings Emotional energy, emotional honesty, emotional feedback and practical intuition contribute to emotional literacy. To experience emotional literacy/emotional honesty a person can go for an emotional intelligence self-audit for several days. This can be improved through monitoring thoughts and feelings, self-observation (are you honest with yourself?), paying careful attention to gut feelings, etc

Emotional Fitness

Trust is the key characteristic of emotional fitness It includes authenticity, resilience, renewal and constructive discontent. Emotional fitness refers to those qualities that illuminate our personal values and character and the feelings that enliven and drive them Tom Peter, a leading executive of Motorola Corporation, USA says, "Technique and Technology are important but adding trust is the issue of the decade." Francis Fukuyama, a senior analyst for the Rand Corporation calls it "radius of trust " It is based upon a combination of believability and spontaneous sociability—an aspect of emotional intelligence indicative of one's ease of talking with strangers and embracing differences with openness instead of rigidity So if you are genuine about your accessibility and attentiveness, others will trust you and you will stand out from the management crowd

Emotional Depth

Emotional depth calls forth one's core character, unique potential, and purpose of destiny. It is the manifestation of a person's commitment, drive, initiative, conscience, and accountability. It shows one's integrity and increases his/her influence beyond authority, rank and title Emotional depth can be developed by inculcating self-awareness, assertiveness, empathy, communication, and by referring to role model.

Emotional Alchemy

It is a blending of forces that enables us to discover creative opportunities and transform lesser ideas into greater ones It is emotional alchemy through which we extend our creative instincts and capacity to flow with problems and pressure and to fight for the future It throws light on the range of hidden solutions and untapped opportunities.

It can be concluded that emotional intelligence refers to the ability to set a goal in life, work towards achieving it, negotiate it and feel empathetic towards others It is a learned process. A key set of characteristics makes up emotional intelligence, such as self-motivation and persistence in the face of frustrations, the ability to control impulse, to regulate moods and to empathize An individual's success at work is 80 per cent dependent on emotional intelligence quotient Studies in the corporate world have shown that IQ gets you hired but emotional intelligence helps you climb the professional ladder. A research survey finding shows that emotional intelligence is the ability to know what emotions one has, how strong they are and the causes, management and control of emotions in a productive manner It is a measure of one's ability to bring intelligence to one's emotions. Therefore, the endeavour of modern day is that the manager should develop emotional intelligence and give it a proper direction. If we are able to channelize emotions in a productive manner, other benefits will follow

REFERENCES

Bernet, M 1996 Emotional intelligence Components and correlates Paper presented at the annual meeting of the American Psychological Association, Toronto, Canada

Gardner, H 1995 Cracking open the IQ box *The American Prospect,* (2), 71.

Goleman, D 1995 *Emotional Intelligence* New York Bantam

Goleman, D 1998 *Working with Emotional Intelligence* New York Bantam

Hatzes, N M 1996. Factors contributing to the academic outcomes of university students with learning disabilities in universities and rehabilitation settings. *Journal of Learning Disabilities,* 25, 386-395

Isen, A.M & Daubman K A. 1984 The influence of affect on categorization *Journal of Personality and Social Psychology.* 47

Isen, A M 1987. Positive affect, cognitive process and social behaviour In L Berkowtiz (Ed) *Advances in Experimental Social Psychology,* Vol 20 New York Academic Press.

Karan, F Store & Harold Q Dillehunt 1978 *Self-Science The Subject is Me* Santa Monica · Gordyear Publishing Co .

Salovey, P & Mayer, J D 1989-1990 Emotional intelligence. *Imagination, Cognition and Personality,* 9

Thomas, A & Chess S. 1980 *The Dynamics of Psychological Development.* New York Brunner/Mazel

W.T Grant Consortium 1992 on the school-based promotion of social competence Drug and Alcohol Prevention Curricula in J David Hawkins et al , *Communities That Care* San Francisco . Jossey-Bass

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